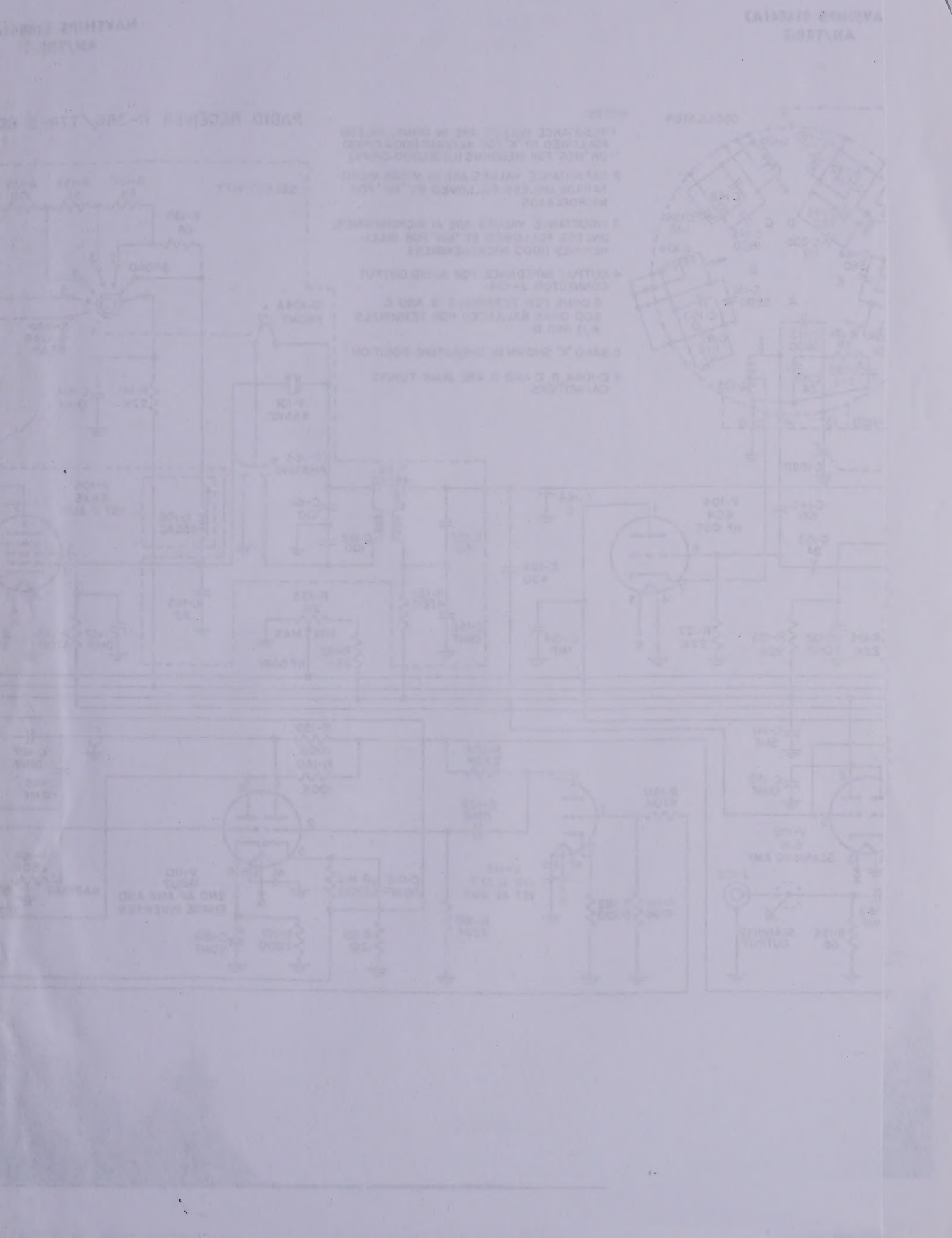
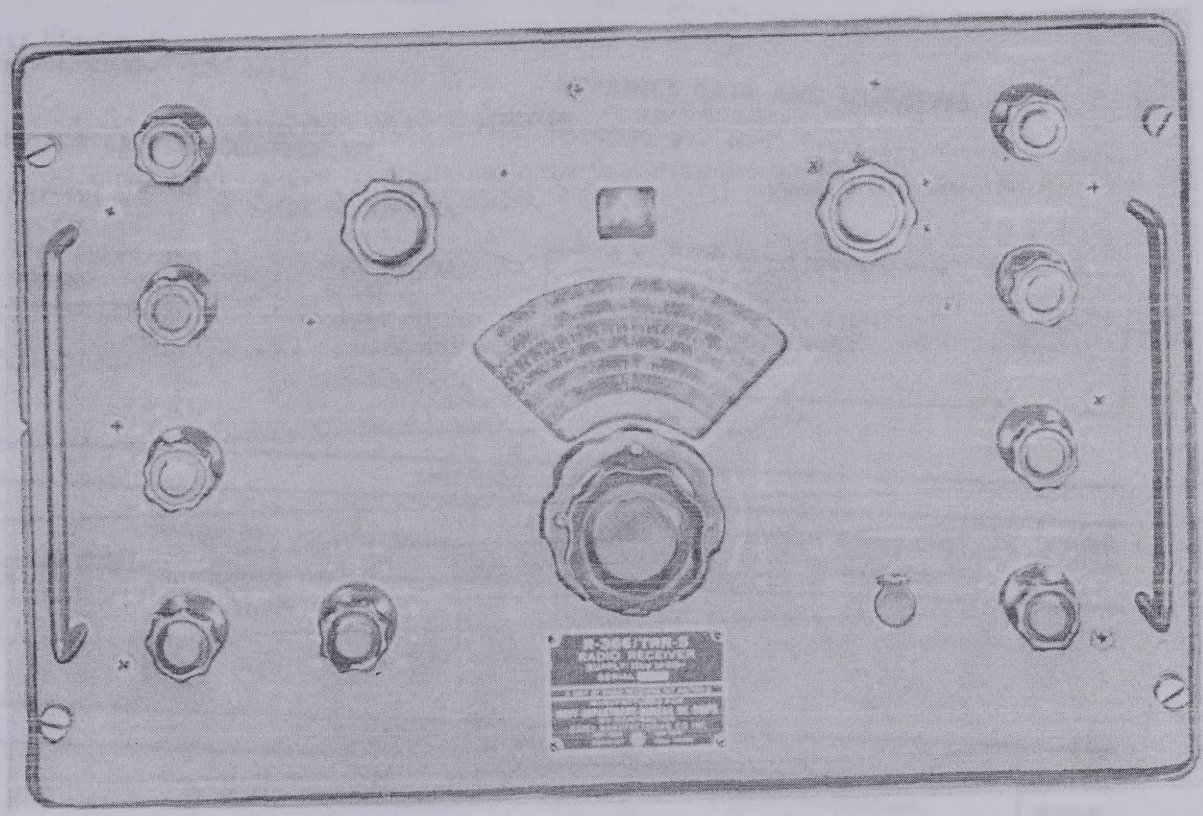


April 1958

RADIO RECEIVING SET AN/TRR-5



Radio Receiving Set AN/TRR-5

FUNCTIONAL DESCRIPTION

The AN/TRR-5 is a general purpose receiving set designed for use as an entertainment unit or auxiliary communications receiver. It may be used at shore stations or on shipboard whenever a 60 cycle 115 volt AC current is available. It is a locally controlled, 16 tube superheterodyne with a frequency range of 540 to 30,000 kilocycles covered in five bands. It can be used on either CW, MCW or Voice signals. The receiver is capable of delivering 5 watts of audio power to the loudspeaker with less than 5 percent distortion. The equipment is ruggedly constructed for use under adverse conditions and is complete except for headphones and antenna.

No field changes in effect at time of preparation (10 December 1957).

ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 0.54 to 30 mc.
QUANTITY OF BANDS: 5.

BAND VS FREQUENCY RANGE DATA
- BAND A: 13 to 30 mc.
- BAND B: 6 to 14 mc.
- BAND C: 2.7 to 6.5 mc.
- BAND D: 1.3 to 3 mc.
- BAND E: 0.54 to 1.3 mc.

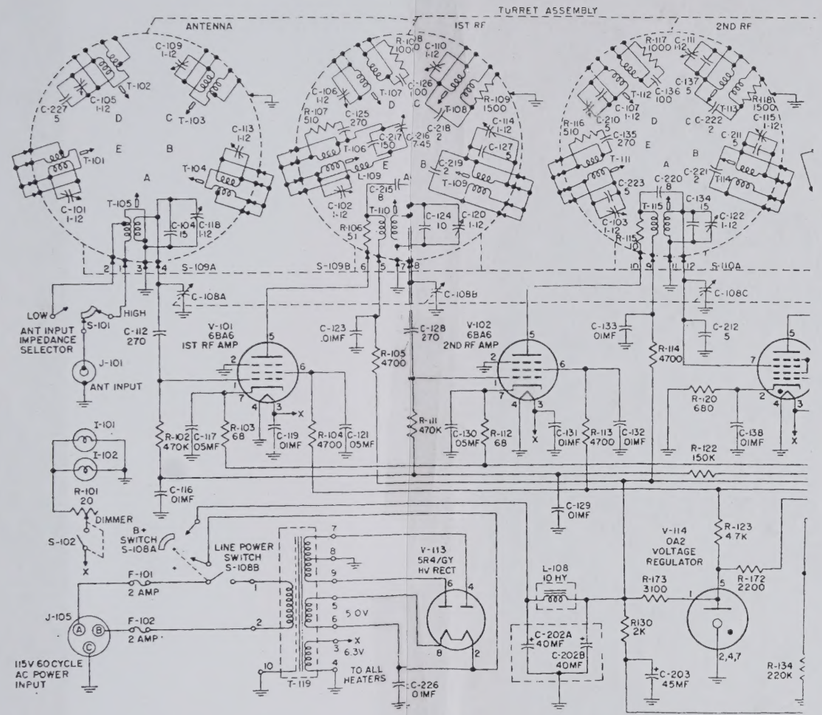
MAIN TUNING DIAL CALIBRATION ACCURACY: ±1%.
IF: 455 kc.
IMAGE REJECTION: 5 to 80 db.
IF REJECTION: 65 db.
SIG TO NOISE RATIO
- CW: 20 db.
- MCW: 10 db.

SENSITIVITY
- CW: 10 uv.
- MCW: 15 uv.
- SCANNING CHANNEL: 10 uv.

AUDIO OUTPUT: 6 mw into 600 ohms.
SCANNING CHANNEL OUTPUT: 100 uv into 70 ohms.
MODULATION FREQUENCY: 1000 cps.
BEAT NOTE FREQUENCY: 1000 cps.
MAX UNDISTORTED OUTPUT
- LDSPKR: 5 W.
- HEADPHONES: 6 mw.

POWER SOURCE REQUIRED: 115 v, 60 cps, single ph, 125 W.

NAVSHIPS 91454(A)
AN/TRR-5



NOTES:

1 RESISTANCE VALUES ARE IN OHMS, UNLESS FOLLOWED BY "K" FOR KILOHMS (1000 OHMS) OR "MEG" FOR MEGOHMS (1,000,000 OHMS).

2 CAPACITANCE VALUES ARE IN MICRO-MICRO-FARADS, UNLESS FOLLOWED BY "MF" FOR MICROFARADS.

3 INDUCTANCE VALUES ARE IN MICROHENRIES, UNLESS FOLLOWED BY "MH" FOR MILLI-HENRIES (1000 MICROHENRIES).

4 OUTPUT IMPEDANCE FOR AUDIO OUTPUT CONNECTOR J-104:
6 OHMS FOR TERMINALS B AND C
600 OHMS BALANCED FOR TERMINALS A, B AND D.

5 BAND "A" SHOWN IN OPERATING POSITION

6 C-108A, B, C AND D ARE MAIN TUNING CAPACITORS.

RADIO RECEIVER R-366/TTR-5 SCHEMATIC DIAGRAM

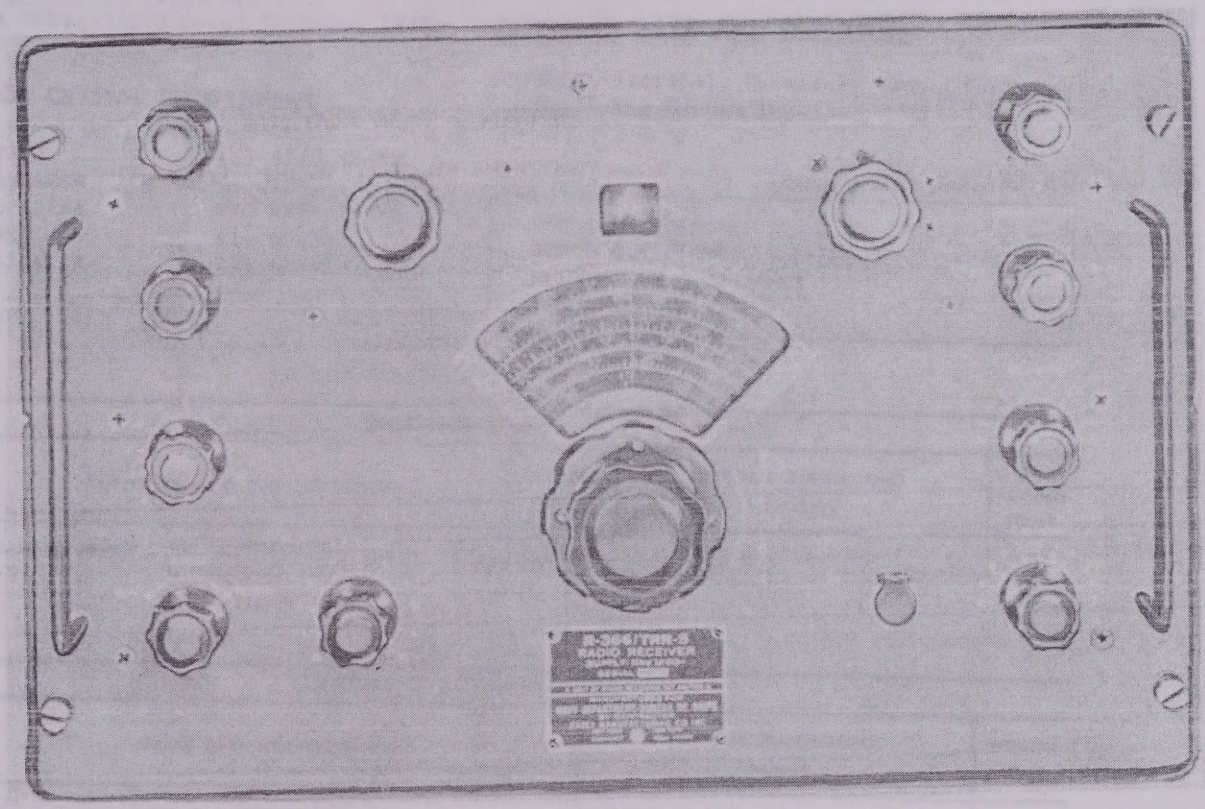
POSITIONS OF CONTROL SWITCH S-105			
	S-105A	S-105B	S-105C
AGC	1,5	SHORTED	OPEN
MGC	1,2	SHORTED	OPEN
CW	1,2	OPEN	CLOSED
	3,4		

Figure 7—17. Radio Receiver R-366/TRR-5, Schematic Diagr

April 1958

RADIO RECEIVING SET

AN/TRR-5



Radio Receiving Set AN/TRR-5

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No field changes in effect at time of preparation (10 December 1957).

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- BAND E: 0.54 to 1.3 mc.

MAIN TUNING DIAL CALIBRATION ACCURACY: ±1%.
IF: 455 kc.
IMAGE REJECTION: 5 to 80 db.
IF REJECTION: 65 db.
SIG TO NOISE RATIO
- CW: 20 db.
- MCW: 10 db.

SENSITIVITY
- CW: 10 uv.
- MCW: 15 uv.
- SCANNING CHANNEL: 10 uv.

AUDIO OUTPUT: 6 mw into 600 ohms.
SCANNING CHANNEL OUTPUT: 100 uv into 70 ohms.
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MAX UNDISTORTED OUTPUT
- LDSPKR: 5 W.
- HEADPHONES: 6 mw.

POWER SOURCE REQUIRED: 115 v, 60 cps, single ph, 125 W.

Radio-Receivers

AN/TRR-5 RADIO RECEIVING SET

April 1958

MANUFACTURER'S OR CONTRACTOR'S DATA

Espey Mfg Co, New York, N.Y.
Contract NObsr-43229 dated 15 March 1949.

TUBE AND/OR CRYSTAL COMPLEMENT

(1) 12AT7WA	(5) 5749/6BA6W
(2) 6005/6AQ5W	(1) 12AU7
(1) 5750/6BE6W	(1) 6626/OA2WA
(1) 5R4WGB	(1) 6C4WA
(2) 5726/6AL5W	(1) 6J6WA

Total Tubes: (16)

No Crystals.

REFERENCE DATA AND LITERATURE

NAVSHIPS 91454(A), Technical Manual for Radio Receiving Set AN/TRR-5.

TYPE CLASSIFICATION
DESIGN COGNIZANCE BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Receiving Set AN/TRR-5	11.8	14 X 19-3/8 X 19-3/4	248

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Case CY-851/TRR-5 w/speaker Baffle	22-1/2 X 25 X 27-1/4	65.42
1	Radio Receiver R-366/TRR-5	14 x 19-3/8 x 19-3/8	83
1	Wire W-101	72 lg	0.734
1	Power Cable Assy W-102	120 lg	1.39
1	Ldspkr LS-171/U	4-11/16 x 10-3/16 dia	3.1
1	Adapter E-301	3/4 X 1-3/16 X 1-7/32	0.076
1	Connector J-301	13/16 dia X 2-15/16	0.207
	J-302	11-16 dia X 1-21/32	0.05
	J-303	1-1/8 dia X 1-7/16	0.056
1	Clamp H-301	15/16 dia X 1-5/64	0.029
1	Set of Repair Parts	3-1/2 X 6-3/4 X 15-1/4	2.2

NAVSHIPS 91454(A)

INSTRUCTION BOOK

for

RADIO RECEIVING SET AN/TRR-5

ESPEY MANUFACTURING COMPANY, INC.

NEW YORK 21, N. Y.

BUREAU OF SHIPS NAVY DEPARTMENT

Contract: NObsr 43229 *Approved by BuShips: 1 May 1951*

LIST OF EFFECTIVE PAGES

PAGE NUMBERS	CHANGE IN EFFECT	PAGE NUMBERS	CHANGE IN EFFECT
Title page	Original	7–0 to 7–25	Original
A to C	Original	8–1 to 8–43	Original
i to v	Original	i–1 to i–3	Original
1–0 to 1–3	Original		
2–0 to 2–10	Original		
3–1 to 3–4	Original		
4–1 to 4–4	Original		
5–1 to 5–3	Original		
6–0 to 6–1	Original		

DEPARTMENT OF THE NAVY
BUREAU OF SHIPS
WASHINGTON 25, D. C.

IN REPLY REFER TO

Code 993-100
1 May 1951

From: Chief, Bureau of Ships
To: All Activities Concerned with the Installation, Operation and Maintenance of the Subject Equipment

Subj: Instruction Book for Radio Receiving Set AN/TRR-5 NAVSHIPS 91454(A)

1. This is the instruction book for the subject equipment and is in effect upon receipt, superseding NAVSHIPS 91454.

2. When superseded by a later edition, this publication shall be destroyed.

3. Extracts from this publication may be made to facilitate the preparation of other Department of Defense Publications.

4. All Navy requests for NAVSHIPS Electronics publications should be directed to the nearest District Publications and Printing Office. When changes or revised books are distributed, notice will be included in the Bureau of Ships Journal and in the Index of Bureau of Ships General and Electronics Publications, NAVSHIPS 250-020.

H. N. WALLIN
Chief of Bureau

RECORD OF CORRECTIONS MADE

CHANGE NO.	DATE	SIGNATURE OF OFFICER MAKING CORRECTION

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GUARANTEE

The equipment, including all parts and spare parts, except vacuum tubes, batteries, rubber and material normally consumed in operation, is guaranteed for a period of one year from the date of delivery of the equipment to and acceptance by the Government with the understanding that all such items found to be defective as to material, workmanship or manufacture will be repaired or replaced, f. o. b. any point within the continental limits of the United States designated by the Government, without delay and at no expense to the Government; provided that such guarantee will not obligate the Contractor to make repair or replacement of any such defective items unless the defect appears within the aforementioned period and the Contractor is notified thereof in writing within a reasonable time and the defect is not the result of normal expected shelf life deterioration.

To the extent the equipment, including all parts and spare parts, as defined above, is of the Contractor's design or is of a design selected by the Contractor, it is also guaranteed, subject to the foregoing conditions, against defects in design with the understanding that if ten percent (10%) or more of any such said item, but not less than two of any such item, of the total quantity comprising such item furnished under the contract, are found to be defective as to design, such item will be conclusively presumed to be of defective design and subject to one hundred percent (100%) correction or replacement by a suitably redesigned item.

All such defective items will be subject to ultimate return to the Contractor. In view of the fact that normal activities of the Naval Service may result in the use of equipment in such remote portions of the world or under such conditions as to preclude the return of the defective items for repair or replacement without jeopardizing the integrity of Naval communications, the exigencies of the Service, therefore, may necessitate expeditious repair of such items in order to prevent extended interruption of communications. In such cases the return of the defective items for examination by the Contractor prior to repair or replacement will not be mandatory. The report of a responsible authority, including details of the conditions surrounding the failure, will be acceptable as a basis for affecting expeditious adjustment under the provisions of this contractual guarantee.

The above one year period will not include any portion of time the equipment fails to perform satisfactorily due to any defects, and any items repaired or replaced by the Contractor will be guaranteed anew under this provision.

INSTALLATION RECORD

Contract: NObsr-49265 Date of Contract, 29 June 1950

Serial Number of equipment.....

Date of acceptance by the Navy.....

Date of delivery to contract destination.....

Date of completion of installation.....

Date placed in service.....

Blank spaces on this page shall be filled in at time of installation. Operating personnel shall also mark the "date placed in service" on the date of acceptance plate located below the model nameplate on the equipment, using suitable methods and care to avoid damaging the equipment.

REPORT OF FAILURE

Report of failure of any part of this equipment, during its entire service life, shall be made to the Bureau of Ships in accordance with current regulations using form NAVSHIPS 383 (revised). The report shall cover all details of the failure and give the date of installation of the equipment. For procedure in reporting failures, see Chapter 67 of the *Bureau of Ships Manual* or superseding instructions.

ORDERING PARTS

All requests or requisitions for replacement material should include the following data:

1. Federal stock number or, when ordering from a Marine Corps or Signal Corps supply depot, the Signal Corps stock number.
2. Name and short description of part.

If the appropriate stock number is not available the following shall be specified:

1. Equipment model or type designation, circuit symbol, and item number.
2. Name of part and complete description.
3. Manufacturer's designation.
4. Contractor's drawing and part number.
5. JAN or Navy type number.

DESTRUCTION OF ABANDONED MATERIAL IN THE COMBAT ZONE

In case it should become necessary to prevent the capture of this equipment, and when ordered to do so, DESTROY IT SO THAT NO PART OF IT CAN BE SALVAGED, RECOGNIZED, OR USED BY THE ENEMY. BURN ALL PAPERS AND BOOKS.

Means:

1. Explosives, when provided.
2. Hammers, axes, sledges, machetes, or whatever heavy object is readily available.
3. Burning by means of incendiaries such as gasoline, oil, paper or wood.
4. Grenades and shots from available firearms.
5. Burying all debris, where possible and when time permits.
6. Throwing overboard or disposing of in streams or other bodies of water.

Procedure:

1. Obliterate all identifying marks. Destroy nameplates and circuit labels.
2. Demolish all panels, castings, switch and instrument boards.
3. Destroy all controls, switches, relays, connections and meters.
4. Rip out all wiring and cut interconnections of electrical equipment. Smash gas, oil, and water cooling systems in gas engine generators, etc.
5. Smash every electrical or mechanical part, whether rotating, moving or fixed.
6. Break up all operating instruments such as keys, phones, microphones, etc.
7. Destroy all classes of carrying cases, straps, containers, etc.
8. Bury or scatter all debris.

DESTROY EVERYTHING!

SAFETY NOTICE

The attention of officers and operating personnel is directed to Chapter 67 of the *Bureau of Ships Manual* or superseding instructions on the subject of radio-safety precautions to be observed.

This equipment employs voltage which are dangerous and may be fatal if contacted by operating personnel. Extreme caution should be exercised when working with the equipment.

While every practicable safety precaution has been incorporated in this equipment, the following rules must be strictly observed:

KEEP AWAY FROM LIVE CIRCUITS:

Operating personnel must at all times observe all safety regulations. Do not change tubes or make adjustments inside equipment with high voltage supply on. Under certain conditions dangerous potentials may exist in circuits with power controls in the off position due to charges retained by capacitors. To avoid casualties always remove power and discharge and ground circuits prior to touching them.

DON'T SERVICE OR ADJUST ALONE:

Under no circumstances should any person reach within or enter the enclosure for the purpose of servicing or adjusting the equipment without the immediate presence or assistance of another person capable of rendering aid.

DON'T TAMPER WITH INTERLOCKS:

Do not depend upon door switches or interlocks for protection but always shut down motor generators or other power equipment. Under no circumstances should any access gate, door, or safety interlock switch be removed, short-circuited, or tampered with in any way, by other than authorized maintenance personnel, nor should reliance be placed upon the interlock switches for removing voltages from the equipment.

RESUSCITATION

AN APPROVED POSTER ILLUSTRATING THE RULES FOR RESUSCITATION BY THE PRONE PRESSURE METHOD SHALL BE PROMINENTLY DISPLAYED IN EACH RADIO, RADAR, OR SONAR ENCLOSURE. POSTERS MAY BE OBTAINED UPON REQUEST TO THE BUREAU OF MEDICINE AND SURGERY.

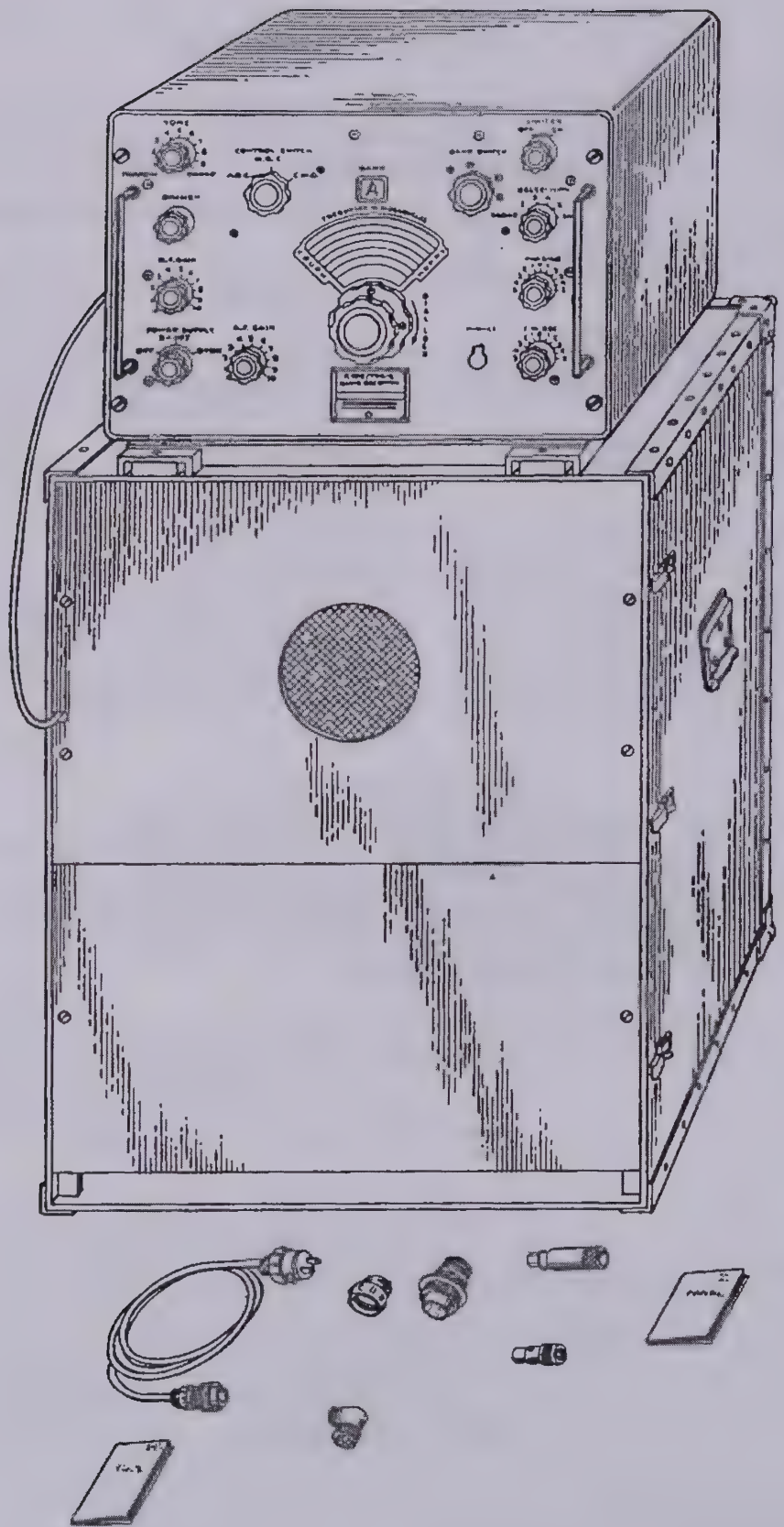


Figure 1—1. Radio Receiving Set AN/TRR-5.

SECTION 1

GENERAL DESCRIPTION

1. SCOPE OF INSTRUCTION BOOK.

This instruction book contains descriptive material and instructions for the installation, operation, and maintenance of Radio Receiving Set AN/TRR-5.

This manual has been prepared for the use of personnel concerned with the operation and repair of Radio Receiving Set AN/TRR-5. A thorough study of its contents will facilitate the work of the personnel concerned.

2. PURPOSE AND BASIC PRINCIPLES.

(See figure 1-1.)

a. Radio Receiving Set AN/TRR-5 is a general purpose receiving set designed for use as an entertainment unit or auxilliary communications receiver. It may be used at shore stations or on shipboard whenever a 60 cycle 115V AC voltage is available. It is a locally controlled, 16 tube superheterodyne with a frequency range of 540 to 30,000 Kilocycles covered in five bands. It can be used on either CW (continuous wave) or MCW (continuous waves modulated with tone or voice) signals. The receiver is capable of delivering 5 watts of audio power to the loudspeaker with less than 5 percent distortion. The equipment is ruggedly constructed for use under adverse conditions and is complete except for headphones and antenna.

b. Radio Receiving Set AN/TRR-5 consists of the following components and accessories: Radio Receiver R-366/TRR-5, Loudspeaker LS-171/U, Case CY-851/TRR-5, transportable group maintenance parts, power cable, speaker cable and connectors for antenna input, scanning output, and audio output.

3. DESCRIPTION OF COMPONENTS.

(See table 1-1.)

(1) CASE CY-851/TRR-5. *(See figure 1-2.)*—Serves as a transit case for containing and transporting all the other components and accessories of Radio Receiving Set AN/TRR-5. It also serves as a loudspeaker enclosure and as a support or table for the receiver when set up for operation. The case is of plywood construction with aluminum facing inside and outside. A compartment is provided on the inside of the case for permanently mounting the Loudspeaker LS-171/U. Also, on the inside are parallel rubber mounted guides for supporting Radio Receiver R-366/TRR-5 during transport. Two spring loaded casket type handles on the ends of the case form the carrying grips. The case is of watertight construction and has four metal feet on the bottom. Color is Marine Corps green.

(2) Radio Receiver R-366/TRR-5 *(See figure 1-3)* is the main unit of Radio Receiving Set AN/TRR-5. The Marine Corps green finish cabinet is equipped with a carrying handle on each end of the front panel. Four shock mounts form the support for the cabinet. The receiver mounts in the cabinet on parallel sliding rails and is clamped firmly in position by four thumb screws. The receiver may be removed from its cabinet by loosening the thumb screws and sliding forward until a stop is reached, then lifting up and out. See figure 1-3 for a general view of Radio Receiver R-366/TRR-5.

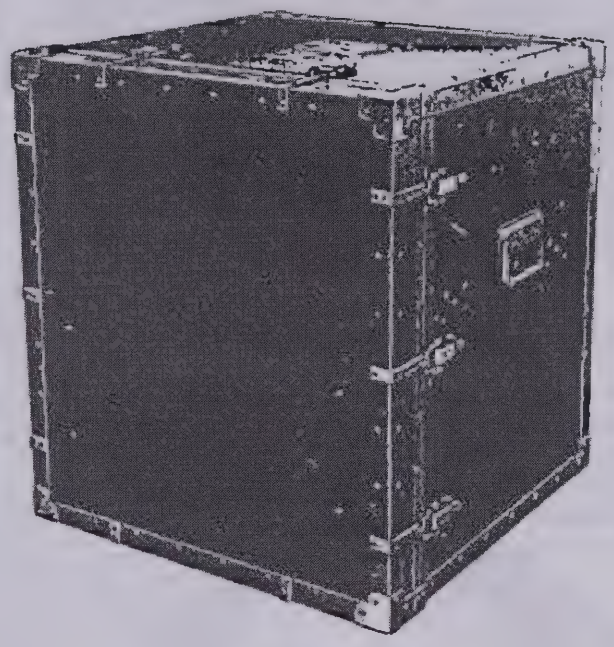


Figure 1—2. Transit Case CY-851/TRR-5.

(3) LOUDSPEAKER LS-171/U *(See figure 1-4)* is a 10 inch diameter cone, permanent magnet type speaker, rated at 5 watts average output. It mounts permanently in Case CY-851/TRR-5.

(4) CABLES.—Cables carried in Case CY-851/TRR-5 consist of a 10 foot Power Cable Assembly for connecting power from an external source to Radio Receiver R-366/TRR-5, and a 6 foot Cable Assembly for connecting the audio output to the Loudspeaker LS-171/U.

(5) Three connectors J-301, J-302, J-303 and an adapter E-301 are carried in the transit case. Connector J-301 is used to connect an antenna to the ANTENNA INPUT jack, J-101. Connector J-302 is used to connect a panoramic type analyzer to jack J-102, adapter E-301 may be used in conjunction with connector J-302 if found necessary. Connector J-303 is provided for alternate audio output operation. *(See figure 1-5.)*

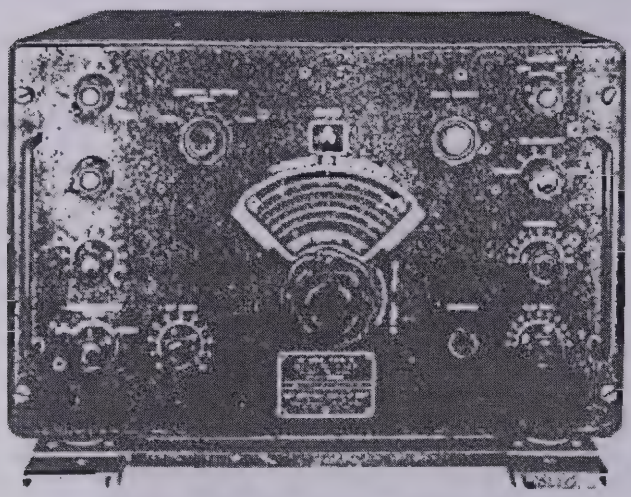


Figure 1—3. Radio Receiver R-366/TRR-5.

(6) The maintenance parts kit *(see table 8-5)* for Radio Receiver R-366/TRR-5 is located to the right of Loudspeaker LS-171/U in the transit case. The maintenance parts kit includes tubes, fuses, lamps and a spare set of connectors.

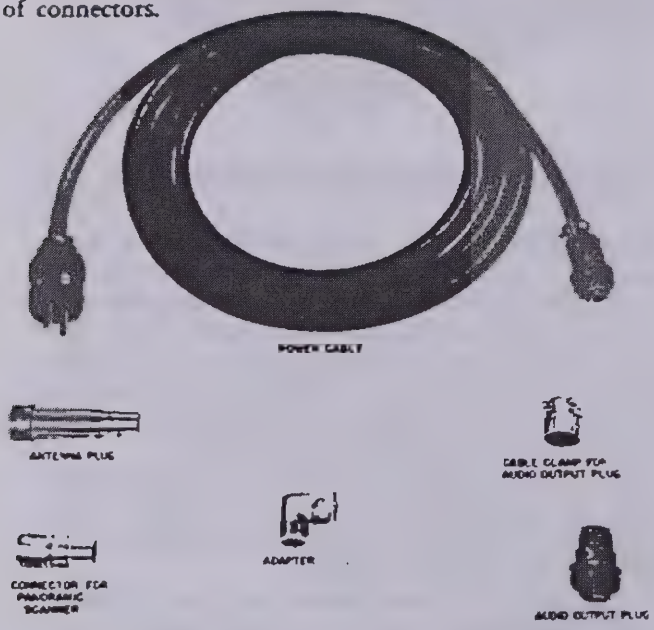


Figure 1—5. Accessory Components.

4. REFERENCE DATA.

(See table 1-2.)

a. NOMENCLATURE.—Radio Receiving Set AN/TRR-5.

b. CONTRACT DATA. — Contract NObsr-43229 dated 15 March 1949.

c. CONTRACTOR. — Espey Manufacturing Co., Inc., New York City, New York.

d. COGNIZANT NAVAL INSPECTOR.—Inspector of Naval Material, New York City, New York.

e. NUMBER OF PACKAGES.—One.

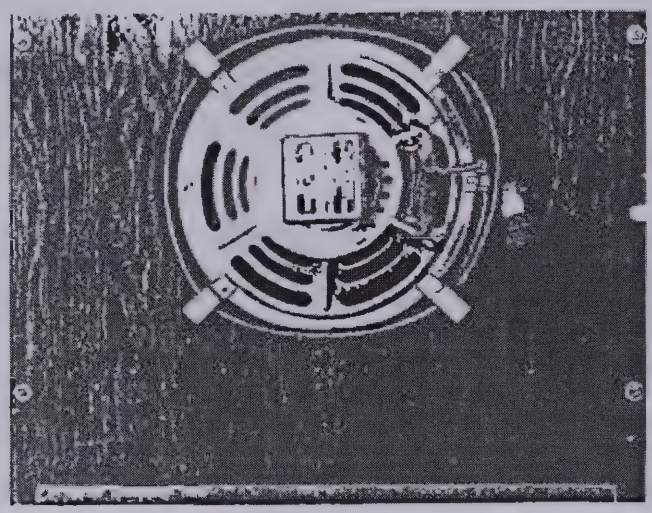


Figure 1—4. Loudspeaker LS-171/U.

f. EQUIPMENT CUBICAL CONTENTS.
(1) CRATED.—11.8 cubic feet
(2) UNCRATED.—8.87 cubic feet

g. EQUIPMENT TOTAL WEIGHT.
(1) CRATED.—248 lbs.
(2) UNCRATED.—160 lbs.

5. ELECTRICAL CHARACTERISTICS.

a. FREQUENCY RANGE.—The receiver has a working frequency range of from 0.54 to 30 megacycles (mc) without hiatus.

b. NUMBER OF BANDS.—Five bands.

c. RANGE OF EACH BAND.
(1) Band A 13 to 30 MCs
(2) Band B 6 to 14 MCs
(3) Band C 2.7 to 6.5 MCs
(4) Band D 1.3 to 3 MCs
(5) Band E 0.54 to 1.3 MCs

d. ACCURACY OF MAIN TUNING DIAL CALIBRATION.—± 1 percent.

e. INTERMEDIATE FREQUENCY.—455 kc.

f. IMAGE REJECTION.—5 to 80 decibels (db)

g. INTERMEDIATE FREQUENCY REJECTION.—65 db.

h. SIGNAL TO NOISE RATIO (MCW).—10 db.

i. SIGNAL TO NOISE RATIO (CW).—20 db.

j. SENSITIVITY (MCW).—15 micro-volts (uv).

k. SENSITIVITY (CW).—10 uv.

l. SCANNING CHANNEL SENSITIVITY.—10 uv.

m. AUDIO CHANNEL OUTPUT.— 6 milliwatts (mw) with respect to a 600-ohm load at the line output terminals of the receiver.

n. SCANNING CHANNEL OUTPUT.—100 uv with respect to a 70-ohm load at the scanning output jack.

o. MODULATION FREQUENCY.—1000 cycles per second (cps).

p. BEAT NOTE FREQUENCY.—1000 cps.

q. AUDIO OUTPUT.—The audio output is designed to work into the following:—

(1) 600-ohm line

(2) Loudspeaker (6 ohms impedance)

(3) One set of headphones having an impedance of 600 ohms.

r. MAXIMUM UNDISTORTED OUTPUT.—

(1) 5 watts into 600-ohm load at line terminals.

(2) 5 watts to the loud speaker.

(3) 6 milliwatts to the headphone terminals J-103.

s. OVERALL FIDELITY.—6 db between the limits of 100 and 4000 cycles.

t. AC POWER SUPPLY REQUIREMENTS.—

(1) Voltage. 115v ± 10%.

(2) Phase. Single.

(3) Frequency. 60 cps.

(4) Power Consumption. Approximately 125 watts (w)

TABLE 1-1. EQUIPMENT SUPPLIED

QUANTITY PER EQUIPMENT	NAME OF UNIT	NOMENCLATURE	HEIGHT (Inches)	WIDTH (Inches)	DEPTH (Inches)	VOLUME C. Ft.	WEIGHT POUNDS	
							Without Contents	With Contents
1	CASE (Transit) containing speaker baffle	CY-851/TRR-5	27¼	25	22½	8.87	65.42	160
1	RADIO RECEIVER	R-366/TRR-5	14	19¾	19⅜	3.1	85	
1	SPEAKER CABLE	W-101	6 ft. lg	⅜ OD			0.734	
1	POWER CABLE ASSEMBLY	W-102	10 ft. lg	0.28 OD			1.39	
1	LOUDSPEAKER	LS-171/U	4⅛		10⅞ OD		3.1	
1	MAINTENANCE PARTS		6¾	3½	15¼	0.208	2.2	
1	ADAPTER	E-301	¾	1⅝	1⅞ OD		0.076	
1	CONNECTOR	J-301	2⅛ lg.	⅞ OD			0.207	
1	CONNECTOR	J-302	1⅝ lg	⅝ OD			0.05	
1	CONNECTOR	J-303	1⅜ lg	1⅛ OD			0.056	
1	CLAMP	H-301	1⅝ lg	⅞ OD			0.029	
2	INSTRUCTION BOOKS		11	8½	¾		1.0	
2	SIG M8 PAMPHLETS		9	6	¾		0.5	

TABLE 1-2. SHIPPING DATA

SHIPPING BOX NO.	CONTENTS		OVERALL DIMENSIONS			VOLUME	WEIGHT
	NAME	DESIGNATION	HEIGHT (Inches)	WIDTH (Inches)	DEPTH (Inches)		
1	RADIO RECEIVING SET	AN/TRR-5	14	19¾	19⅜	3.1 cu. ft.	85 lbs.

TABLE 1-3. ELECTRON TUBE COMPLEMENT

JAN TUBE TYPE	SYMBOLS INVOLVED	QUANTITY PER EQUIPMENT	DESCRIPTION
6BA6	V-101, V-102, V-106, V-107, V-108	5	Remote Cut-Off Pentode
6BE6	V-103	1	Pentagrid Converter
6C4	V-104	1	High Frequency Power Triode
6J6	V-105	1	Twin Triode
6AL5	V-109, V-115	2	Dual Diode
5R4GY	V-113	1	High Voltage Rectifier
OA2	V-114	1	Voltage Regulator
12AU7	V-110	1	Dual Triode
6AQ5	V-111, V-112	2	Beam Power Pentode
12AT7	V-116	1	Dual Triode

SECTION 2

THEORY OF OPERATION

1. INTRODUCTION.

Radio Receiving Set AN/TRR-5 is a general purpose receiving set designed for use as an entertainment unit or auxilliary communications receiver. It may be used at shore stations or on shipboard whenever a 60 cycle 115v AC voltage is available. The receiver is a manually controlled, 16 tube superheterodyne. It has a frequency range of 540 to 30,000 kc in five tuning bands and receives either CW or voice signals (MCW).

To facilitate analysis of the electrical circuits of the equipment, a functional block diagram (figure 2-1) showing the signal path is provided. In addition simplified schematic diagrams (figures 2-2 through 2-13) are included in the text where they are required for thorough analysis of the circuits.

2. GENERAL THEORY OF OPERATION.

(See figure 2-1.)

The RF signal passes from the antenna to the receiver through the ANTENNA INPUT jack J-101, and is amplified by the RF amplifier circuit, which consists of two 6BA6 pentode tubes, V-101, V-102, tuned in both grid circuits. The signal output of the RF stage is inductively coupled to the grid circuit of a 6BE6 pentode tube, V-103 employed as a mixer.

The high frequency oscillator circuit employs a 6C4 triode, V-104, in a Hartley oscillator arrangement. The oscillator output is capacitively coupled to the grid of the mixer tube. Since the oscillator output frequency is always 455 kc higher than the signal frequency, at any position of the tuning dial, an intermediate frequency of 455 kc is produced in the plate circuit of the mixer tube.

The IF signal is fed to a crystal filter equipped with a SELECTIVITY switch S-104 and PHASING control C-163. Switch S-104 changes the selectivity of the filter while the phasing control changes the frequency of the crystal at which rejection takes place. Hence an interfering signal may be "tuned out" by the adjustment of the phasing and selectivity controls. The IF signal is fed to the first and second IF amplifier stages, V-106 and V-107 where the signal voltage is amplified and fed to the detector which is one-half of a dual diode 6AL5 tube. If voice signals are being received the application of the signal voltage to the detector diode circuit, V-109, will produce audio voltages across the A.F. GAIN CONTROL R-158. When a signal voltage is applied, a rectified plate current flows and builds up an audio voltage across resistor R-156. The limiter section of V-109, permits the normal audio voltage to pass. Heavy peaks of noise, greater in amplitude than the desired signal will cause the limiter tube to cease conducting thereby effecting a limiting action.

The reception of CW or coded signals is obtained when switch S-105 is in the C.W.O. position. The output of the C.W. oscillator tube V-108, a 6BA6 pentode is capacitively coupled to the detector section of V-109. The C.W. oscillator is set manually to a frequency slightly

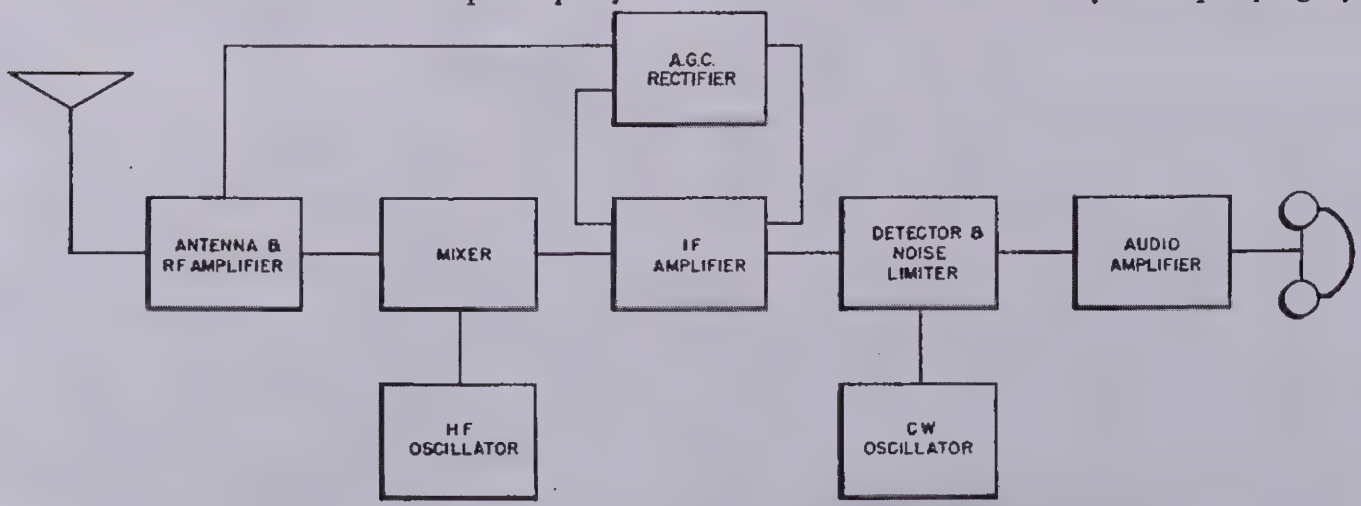


Figure 2—1. Radio Receiving Set AN/TRR-5, Functional Block Diagram.

above or below the 455 kc IF and beats against the IF code signals in the detector. The resulting audio voltage is picked up from the A.F. GAIN control R-158 and is applied to the grid of the first AF amplifier tube, V-116. The output of the first AF amplifier is capacitively coupled to the second AF amplifier half of tube V-110. A portion of the output of the first half of V-110 is fed back to the grid of the second half of V-110 and is shifted 180 degrees out of phase. The plates of V-110 are thus 180 degrees out of phase and are able to drive the push-pull grids of the AF amplifier tubes V-111 and V-112. A tone control R-164 is provided so that the high frequency response may be attenuated. The amplified signals are fed through the audio output transformer T-120 to the PHONES jack J-103 and the AUDIO OUTPUT connector J-104 simultaneously. Whenever the receiver is operated some load such as the loudspeaker LS-171/U must be connected to the AUDIO OUTPUT jack J-104.

3. CIRCUIT ANALYSIS, RADIO RECEIVER R-366/TRR-5.

a. RF CIRCUITS.

(1) GENERAL.—The RF amplifier stages consist of two remote cut-off pentode tubes, V-101 and V-102. Two tuned RF amplifier stages are used to insure high sensitivity for the reception of weak signals and sufficient selectivity to reject image frequencies and spurious signals. Transformers, coils, trimmers and fixed capacitors for the tuned circuits of these stages are contained in individually shielded and grounded units. A 360 degree detent mechanism marked BAND SWITCH on the front panel, indexes the proper set of transformers, coils and capacitors for the frequency band in use. The detent mechanism indexes a shaft mounting a pinion gear which drives the main shaft of the turret assembly. One revolution of the BAND SWITCH knob is required to change from one band to an adjacent band. Wipers on each side of the turret short the adjacent unused RF transformers and coils to prevent interaction between adjacent turret components. Simultaneous tuning of the transformers and coils is accomplished by a four-gang variable tuning capacitor, C-108A to C-108D inclusive.

(2) RF AMPLIFIER STAGES. *(See figure 2-2.)* The signal from the ANTENNA INPUT terminal J-101 on the front panel of the receiver passes through the IMPEDANCE SELECTOR switch S-101 to the primary of the antenna transformer assembly, T-101, T-102, T-103, T-104 or T-105 depending on the band selected.

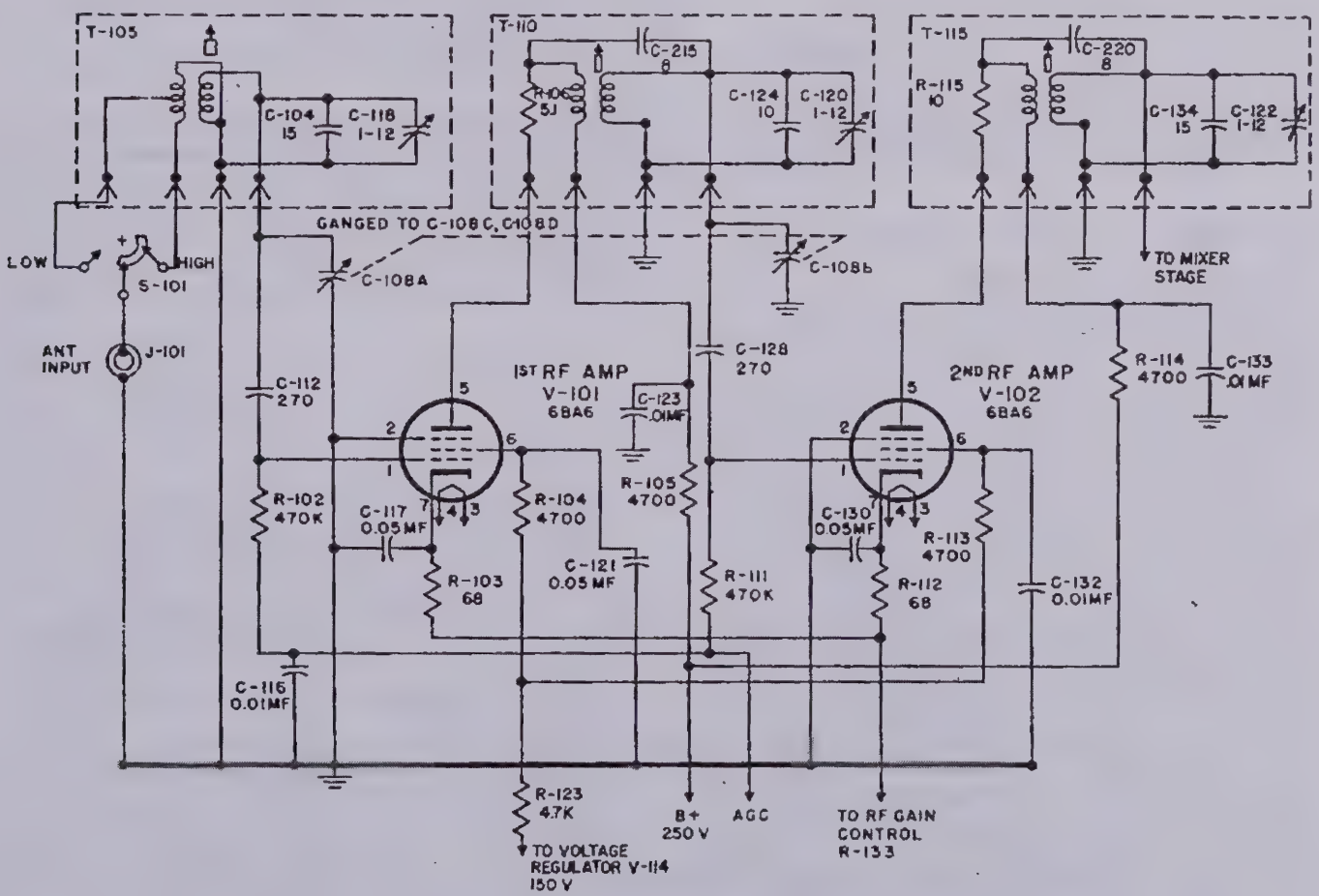


Figure 2—2. RF Amplifier Circuits.

From the secondary of the transformer, which is tuned by section C-108A of the four gang tuning capacitor the signal passes through the coupling capacitor C-112 to the grid of the first RF amplifier V-101. Manual control of the gain of RF tubes V-101 and V-102, together with that of the first and second IF tubes V-106 and V-107 is provided for by returning the cathodes of the tubes to the R.F. GAIN potentiometer R-133. The gain of V-101, V-102, and V-106 is also controlled automatically, by having their grid return circuits connected to the AGC circuit. The DC voltage developed by the A.G.C. rectifier V-112 is applied to the grids of V-101, V-102 and V-106 through resistors R-102, R-111 and R-141. These resistors also serve as grid load resistors for C.W. and M.C.W. operation.

The amplified RF signal passes from the plate of V-101 to the primary of the RF transformer T-106, T-107, T-108, T-109 or T-110 depending on the band selected. From the secondary of the transformer which is tuned by section C-108B of the four-gang tuning capacitor, the signal passes through the coupling capacitor C-128 to the grid of the second RF amplifier V-102. From this point the action is identical with that of the first RF amplifier V-101.

(3) THE MIXER (V-103). *(See figure 2-3.)*

The mixer stage consists of a type 6BE6 pentagrid converter tube, its associated tuned circuit resistors and by-pass capacitors. The amplified signal from the plate of V-102 is coupled through the RF transformer, T-111, T-112, T-113, T-114 or T-115 depending on the band selected, to the signal grid (number three grid) of the mixer tube V-103. Because it is a double input tube, that is having two input grids one for the amplified RF voltage, the other for the high frequency oscillator voltage which is always 455 kc higher than the incoming signal frequency an intermediate frequency of 455 kc is produced in the plate circuit of the mixer tube. The plate load of V-103 is tuned to 455 kc. Capacitor C-220 provides additional capacitive coupling at the high frequency end of the band. Capacitor C-212 is a fixed trimmer capacitor which fixes the minimum capacitance of tuning capacitor C-108C.

(4) HIGH FREQUENCY OSCILLATOR CIRCUIT (V-104). *(See figure 2-4.)*

The high frequency oscillator circuit is of the conventional Hartley oscillator type and consists of a type 6C4 vacuum tube V-104, the oscillator coil, (either L-101 or L-102, L-103, L-104, L-105, depending on the band selected) tuning capacitor C-108D, and associated resistors and capacitors. The oscillator output is coupled to grid number one of the mixer tube V-103 by the coupling capacitor C-153. The plate voltage for the oscillator tube is stabilized by the voltage regulator tube V-114 and filtered by resistor R-172 and capacitor C-154. Resistor R-174 aids in maintaining the H.F. oscillator output voltage at a uniform level in band A only.

(5) SCANNING AMPLIFIER (V-105). *(See figure 2-5.)*

The scanning amplifier is designed to provide a 72 ohm impedance output for a panoramic type spectrum ana-

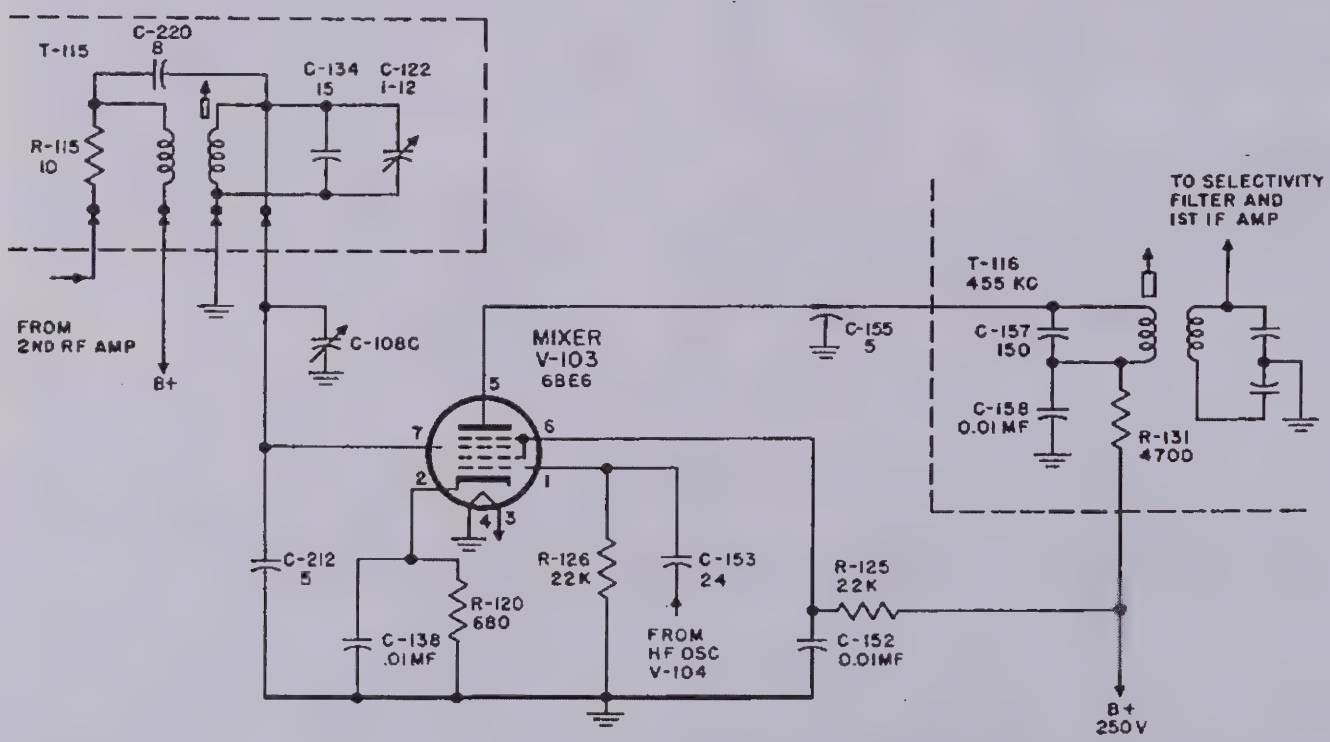


Figure 2—3. Mixer Circuit.

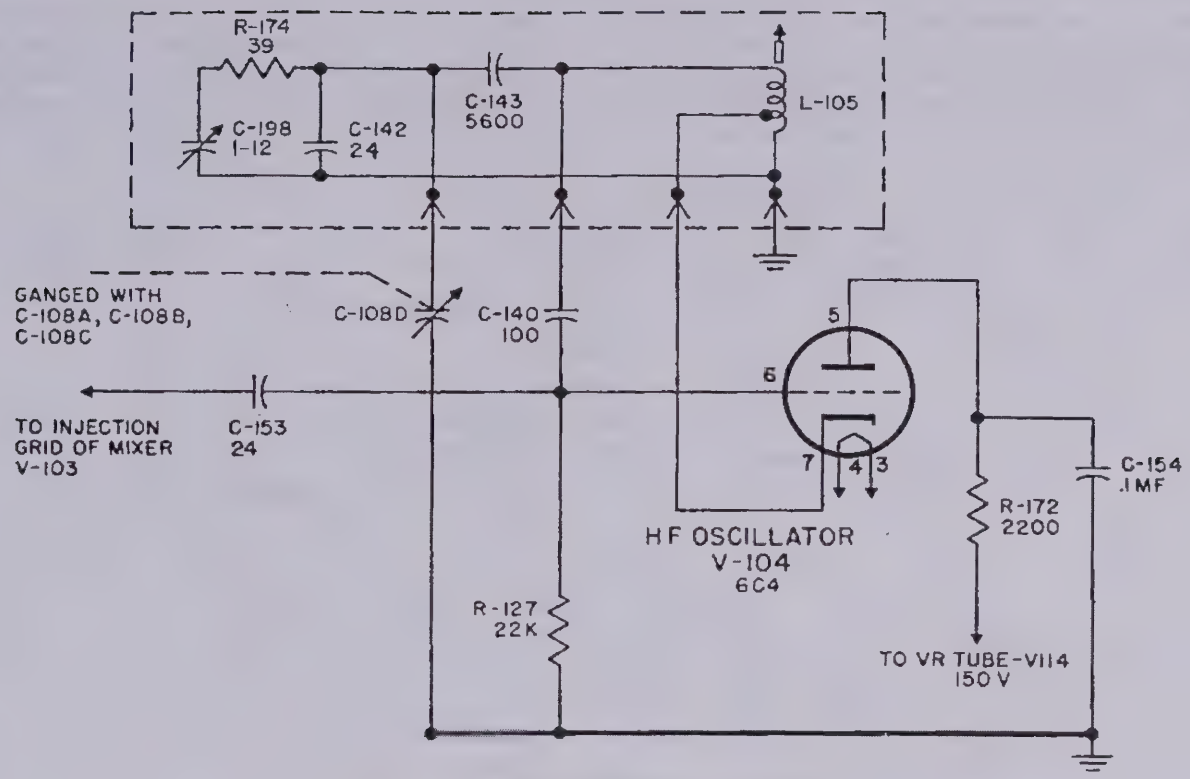


Figure 2—4. High Frequency Oscillator.

lyzer without interfering with the operation of the receiver. For this purpose a high-mu twin triode, 6J6, with both sections in parallel, is used as a cathode-follower. The required signal voltage is fed from the plate of the mixer tube (V-103) to the grid of the scanning amplifier through capacitor C-156. The output of the scanning amplifier is fed to a coaxial cable connector J-102 on the rear of the chassis marked SCANNING OUTPUT. The spectrum analyzer used with this receiver must have an input frequency of 455 kc and an input impedance of 72 ohms.

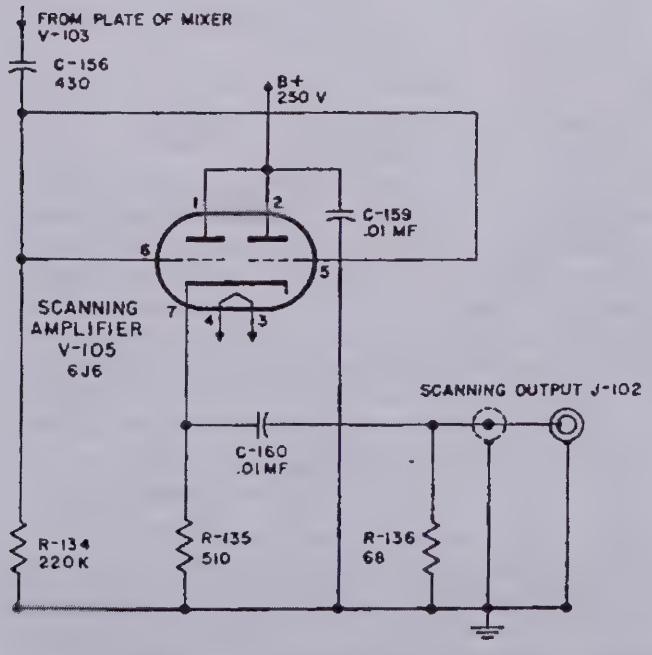


Figure 2—5. Scanning Amplifier.

(6) IF AMPLIFIER STAGES. *(See figures 2-6 and 2-7.)*

The intermediate frequency circuits consist of two 6BA6 pentode tubes V-106 and V-107, the transformers T-116, T-117 and T-118, coil L-106, crystal filter Y-101, phasing control C-163, associated resistors, capacitors, and the SELECTIVITY switch S-104. The IF amplifier is tuned to a frequency of 455 kc. The input signal voltage to the amplifier passes from the plate circuit of the mixer V-103 through the transformer T-116, which has a tuned primary. The secondary of T-116 is untuned. C-161 and C-162 are connected across the secondary of T-116 and the other side of each capacitor is tied to ground to provide two signal voltages, with respect to ground, which are 180 degrees out of phase. These two voltages are used in conjunction with the PHASING control (a split-stator capacitor) C-163 to neutralize the capacitive feed-through in the crystal holder and at the same time vary the resonance curve of the crystal. Due to the shape of the resonance curve the crystal filter serves a double purpose: it acts as a high Q parallel resonant circuit giving added selectivity to the receiver, secondly, there is a high Q series resonance effect at a frequency closely adjacent to the parallel resonant frequency which acts as a "rejection slot" and can be used to reject an interfering signal close to the one being received. The SELECTIVITY

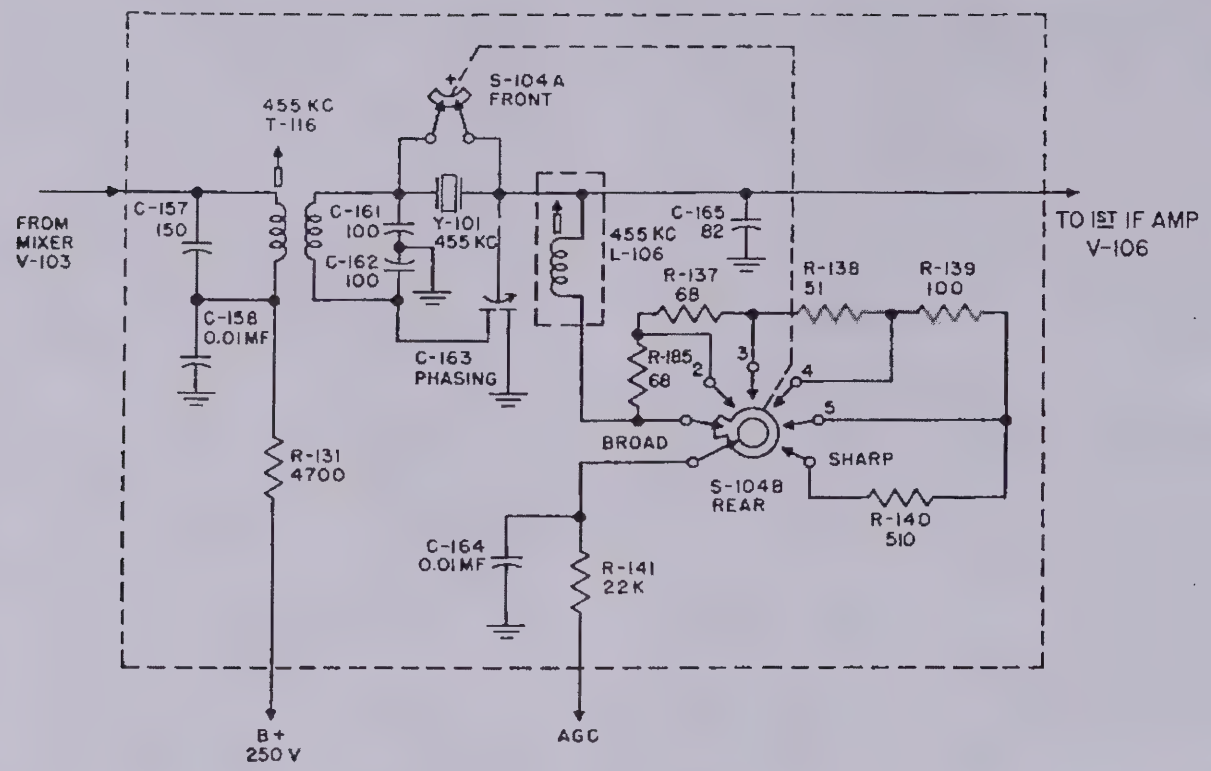


Figure 2—6. Crystal Filter.

switch S-104 gives the operator a choice of six degrees. of selectivity. The selectivity control circuit operates as follows: When the SELECTIVITY switch is in the BROAD position the crystal is short-circuited and the signal is fed directly from the secondary of T-116 to the grid circuit of V-106. Coil L-106 is a high impedance grid load for the first IF amplifier. When the SELECTIVITY switch is in position 2 through SHARP the crystal Y-101 is in series between the secondary of T-116 and the grid of V-106 but the variation in selectivity is obtained by the addition of resistors in series between the coil L-106 and the grid return circuit at V-106. The series resistors change the Q of the circuit shunted across the crystal output. As the SELECTIVITY switch S-104, is rotated from position

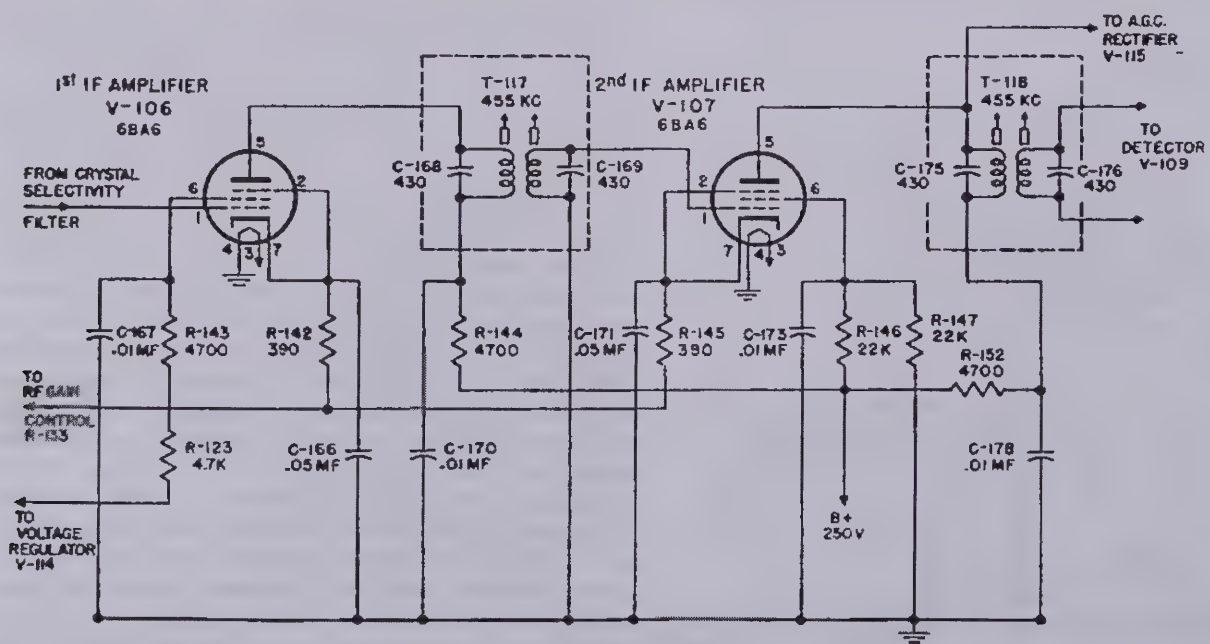


Figure 2—7. Intermediate Frequency Circuits.

2 to SHARP the amount of series resistance is increased making the crystal filter more selective.

The gain of IF amplifier tube V-106 is controlled manually by means of R.F. GAIN control R-133, in the M.G.C. position of the CONTROL SWITCH. The gain of tube V-106 is controlled automatically by having its grid return circuit connect to the A.G.C. circuit through resistor R-141. The 455 kc signal is coupled from the plate circuit of V-106 to the grid of V-107 through the double tuned IF transformer T-117. Tube V-107 is also a

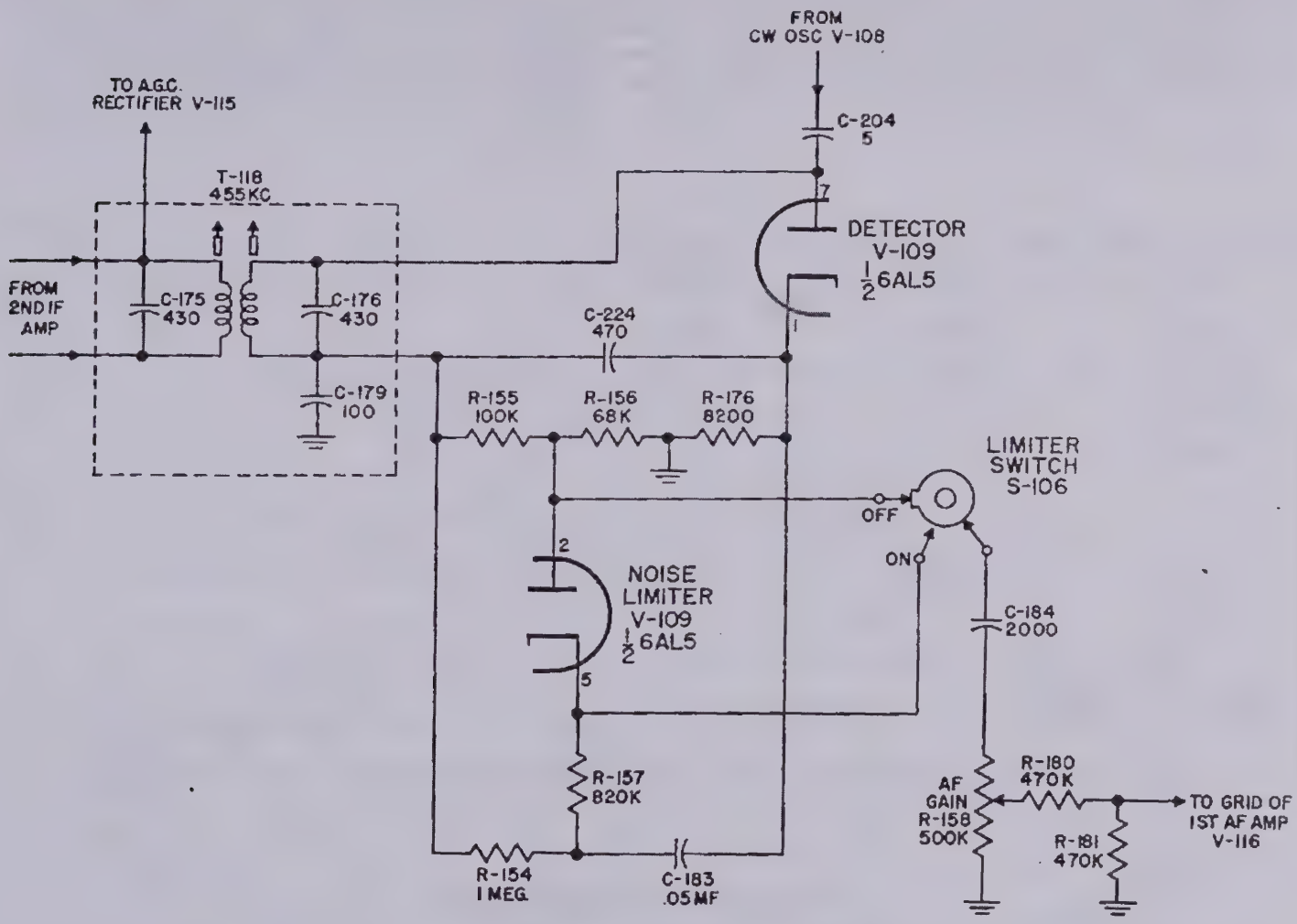


Figure 2—8. Detector and Noise Limiter Circuits.

remote cut-off pentode. The grid is returned to ground through the secondary of transformer T-117 and the cathode is returned to the R.F. GAIN control R-133 through the biasing resistor R-145 therefore the gain of the stage is controlled through the manual gain control. The screen voltage is supplied by a voltage divider arrangement. The amplified 455 kc signal is coupled from the plate circuit of V-107 to the detector diode V-109 through the double tuned IF transformer T-118.

(7) DETECTOR AND NOISE LIMITER CIRCUITS (V-109). *(See figure 2-8.)*

(*a*) The detector uses one section of a twin diode V-109. The modulated 455 kc signal is applied to the diode from IF transformer T-118. The signal is rectified due to the diode action and the resultant pulsating dc voltage (audio component) is applied across the diode load resistors R-155 and R-156 and also across the R-C combination R-154 and C-183. Capacitor C-179 serves as an r-f bypass condenser. The LIMITER switch S-106 in the OFF position allows one half of the audio voltage to feed through C-184 to the AUDIO AMPLIFIER control R-158. This voltage drives the audio output circuits. The voltage that is applied across R-154 and C-183 is utilized for automatic gain control action and is discussed later.

(*b*) A series diode noise-peak limiter is introduced between the detector and the first audio stage *(see figure 2-8)* when the LIMITER switch, S-106, is set to the ON position. The series noise-peak limiter, V-109, uses the remaining half of the 6AL5 dual diode and functions as follows.

Normally the limiter diode conducts because the plate

is maintained at a positive voltage with respect to the cathode. The full negative voltage developed across the detector load resistors, R-155 and R-156, is applied through resistor R-154 to capacitor C-183 which charges to the total average rectified voltage across the detector load. The plate, meanwhile, is maintained at a less negative voltage because of the voltage divider action of the detector resistors. The audio frequency path is now from the junction of resistors R-155 and R-156 through the limiter tube, LIMITER switch S-106, and coupling capacitor C-184 to the AF GAIN control R-158. The audio voltage taken off the AF GAIN control is then applied to the grid of first AF amplifier, V-109. When a sharp noise pulse is received the time constant of R-154 and C-183 does not permit capacitor C-183 to become charged to the high transient voltage. However the relatively short time

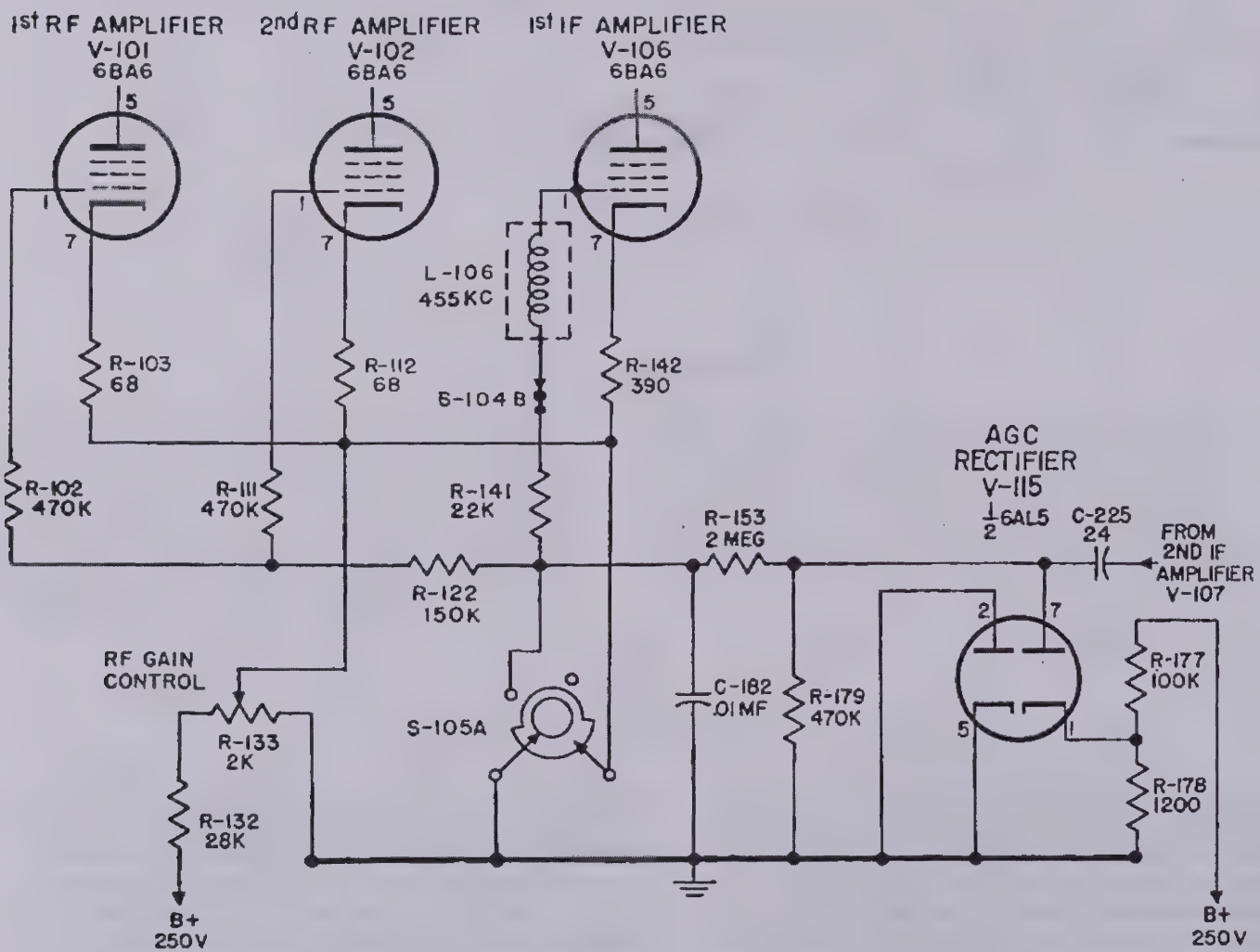


Figure 2—9. Automatic Gain Control Circuits.

constant of R-155, R-156, R-176 and C-224 permits the plate to follow the transient rapidly placing the plate at a more negative potential than the cathode thereby cutting off current flow in the tube for the duration of the noise pulse. As a result the noise pulse does not reach the audio-frequency circuit. Resistor R-176 in the cathode of the detector aids the noise limiter action by supplying a small additional bucking voltage through capacitor C-183 and resistor R-157 to the cathode of the limiter diode. By the time the cathode of the limiter diode has assumed an effectively more negative potential, the noise pulse will have decayed and the limiter diode becomes conductive again, restoring AF input to the audio amplifier.

(8) AUTOMATIC GAIN CONTROL CIRCUITS (A.G.C.). *(See figure 2-9.)*

The A.G.C. rectifier employs one half of a dual diode type 6AL5 tube V-115 as a rectifier to obtain the control bias for A.G.C. operation. An A.G.C. delay voltage of approximately 2.7 volts is maintained at the cathode of the A.G.C. rectifier by means of a voltage divider consisting of resistor R-177 and R-178. The output of the second IF amplifier is coupled to the plate of V-115 through capacitor C-225. Positive peaks of RF voltage exceeding 2.7 volts cause the diode to conduct thereby developing a negative voltage across load resistor R-179. This voltage is filtered by the resistor-capacitor network consisting of R-153 and C-182. The time constant of the filter is such that the capacitor discharges very little between conduction periods of the diode. Thus the control bias developed at the junction of resistor R-153 and capacitor C-182 follows the peak value of the input voltage producing a relatively constant negative control bias. The grid return circuits of the RF amplifier tubes V-101 and

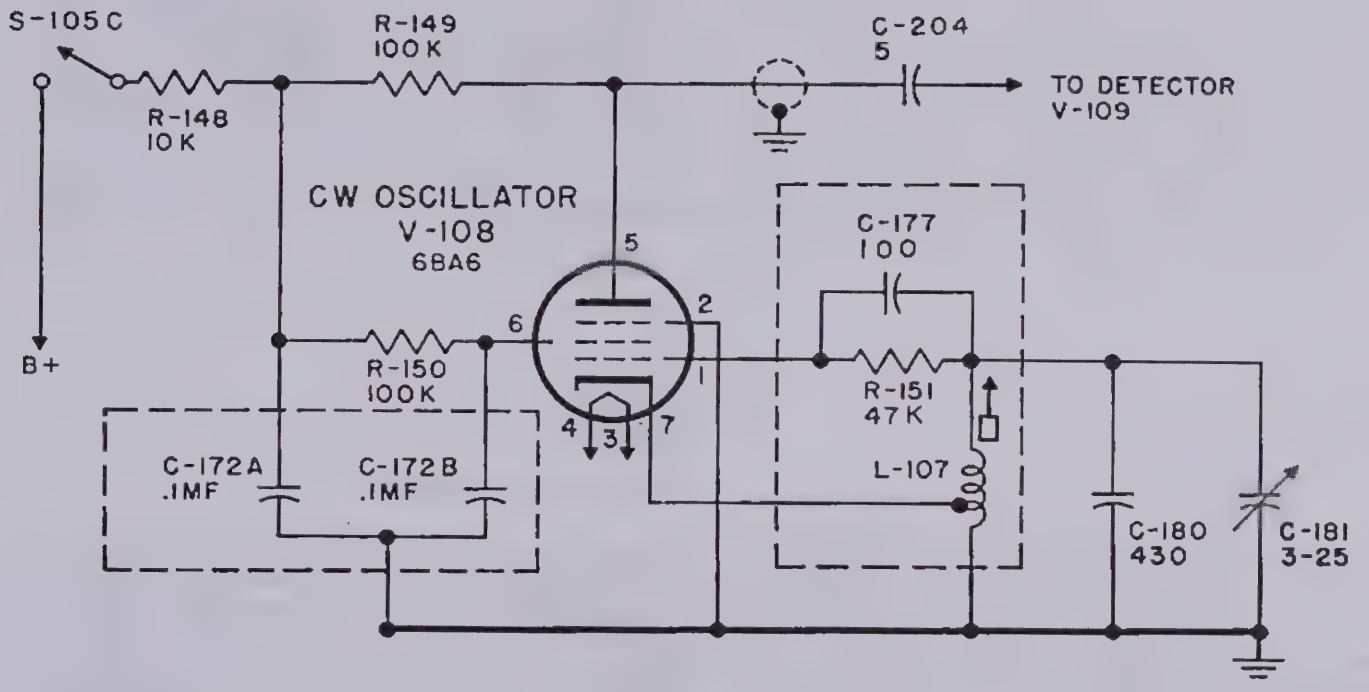


Figure 2—10. CW Oscillator Circuit.

V-102 and the 1st IF amplifier V-106 are connected to the A.G.C. voltage filter and are biased by this voltage. Since the gain of these stages is a function of the grid bias, it follows, that the gain is controlled by the A.G.C. voltage whose action is based on the level of the IF output signal. The negative voltage produced by high signal levels causes a reduction in gain in the RF and IF amplifier stages. In this way the variation in receiver output due to changes in the received signal strength is greatly reduced. Due to the positive delay voltage of 2.7 volts applied to the cathode of V-115 the gain of the receiver is at maximum when weak signals are being received. The automatic gain control functions only when the CONTROL SWITCH S-105 is in the A.G.C. position. The cathode resistors (R-103, R-112 and R-142) of tubes V-101, V-102 and V-106 are grounded by Switch S-105A in the A.G.C. position. The R.F. GAIN control is inoperative when switch S-105A is in the A.G.C. position. When the CONTROL SWITCH (S-105) is in the M.G.C. (manual gain control) or C.W.O. (C.W. oscillator) positions the A.G.C. voltage is held at ground potential. The gain of the RF and IF amplifiers may then be controlled manually by the application of a positive bias to the cathode resistors (R-103, R-112, R-142 and R-145) by means of the R.F. GAIN control and bleeder resistor R-132. Resistor R-132 serves a double function: it extends the attenuation range of the R.F. GAIN control and in conjunction with R-133 acts as a bleeder resistor for the high voltage d-c supply.

(9) C.W. OSCILLATOR (V-108). *(See figure 2-10.)*

The C.W. oscillator is used to beat with the IF output to make unmodulated C.W. signals audible. It is an electron coupled oscillator employing a remote cut off pentode 6BA6 (V-108). The frequency of the oscillator is tuned to 455 kc by the resonance of coil L-107 and capacitors C-180 and C-181. The variable capacitor C-181 is mounted on the front panel and marked C.W. OSC. The C.W. OSC. control is used to vary the frequency of the

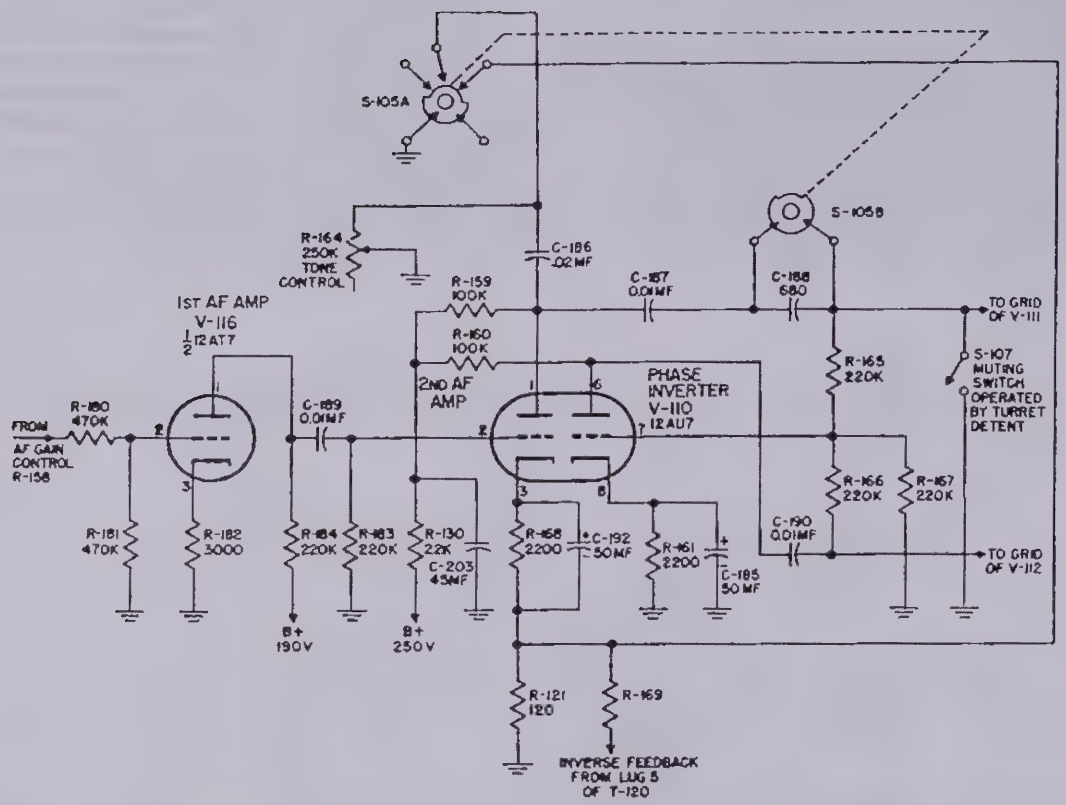


Figure 2—11. Audio Amplifier and Phase Inverter Circuits.

C.W. oscillator over a small range in order to provide an audible beat with the 455 kc IF signal. The operator adjusts the resultant tone of the received C.W. signal by means of this control. The three position switch S-105 marked CONTROL SWITCH on the front panel controls the operation of the C.W. oscillator by connecting it to the B+ supply in the C.W.O. position. At the same time the CONTROL SWITCH removes A.G.C. control by grounding the A.G.C. rectifier, changes the value of the audio output grid coupling capacitor C-187 by opening the short across C-188, and removes the audio inverse feedback from lug 5 of transformer T-120 by grounding

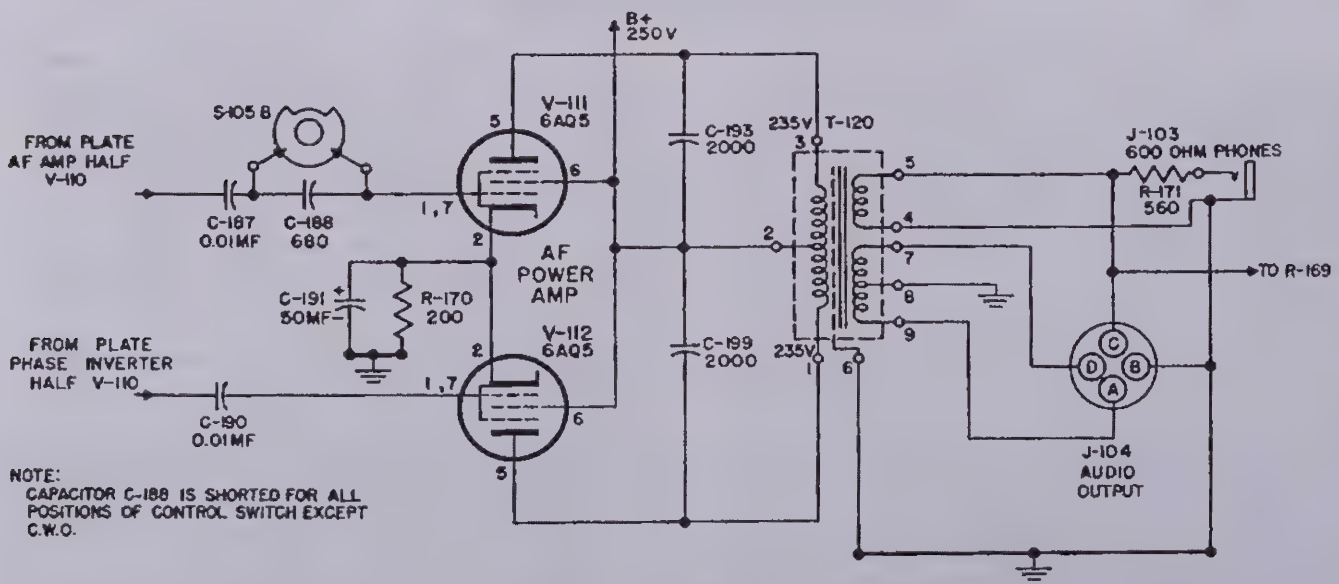


Figure 2—12. Audio Amplifier—Audio Output.

R-169. *(See figure 2-11 and paragraph b (1) (a).)* As a result the audio bandwidth of the receiver is made narrower to suit beat note reception.

b. AUDIO CIRCUITS.

(1) AUDIO AMPLIFIERS AND PHASE INVERTER (V-116 and V-110). *(See figure 2-11.)*

(*a*) The output of the limiter (V-109) is fed to the A.F. GAIN control R-158 by the coupling capacitor C-184 and a portion of this audio voltage, depending on the setting of the control, is applied to the grid of the first AF amplifier V-116. V-110 is a 12AU7 twin-triode used as a combination audio voltage amplifier and phase inverter. The plate load of the second AF amplifier is made up of resistor R-159 and the resistor-capacitor network C-186 and R-164. The potentiometer R-164 acts as a TONE control by allowing capacitor C-186 to bypass to ground a portion of the high frequency audio component. The TONE control (R-164) is operative in the A.G.C. and M.G.C. position of the CONTROL SWITCH. With the control switch in the C.W.O. position, the switch section (S-105A) shorts resistor R-164 to ground. This action permits the capacitor C-186 to attenuate the high frequency audio response of the audio amplifier tube V-110. The switch section S-105B places capacitor C-188 in series with coupling capacitor C-187, this lowers the total value of coupling capacity and furnishes a high impedance to low frequency audio voltages. The micro-switch (S-107) operated by the detent of the coil turret is used as a muting switch. This switch grounds the output of tube V-110 and eliminates most of the noise caused by switching contacts when the turret is rotated to change bands.

(*b*) The phase-inverter used in the audio amplifier is known as the "self balancing" type. This arrangement provides a signal voltage at the pin 6 plate of V-110 which is 180 degrees out of phase with and equal in amplitude to the signal voltage at the pin 1 plate of V-110. These are the required voltages for the proper operation of the pushpull AF power amplifier. The output of the six-ohm secondary of transformer T-120 is connected to the cathodes of tube V-110 through the resistor-capacitor network R-169, R-168 and C-192 in order to improve the audio frequency response.

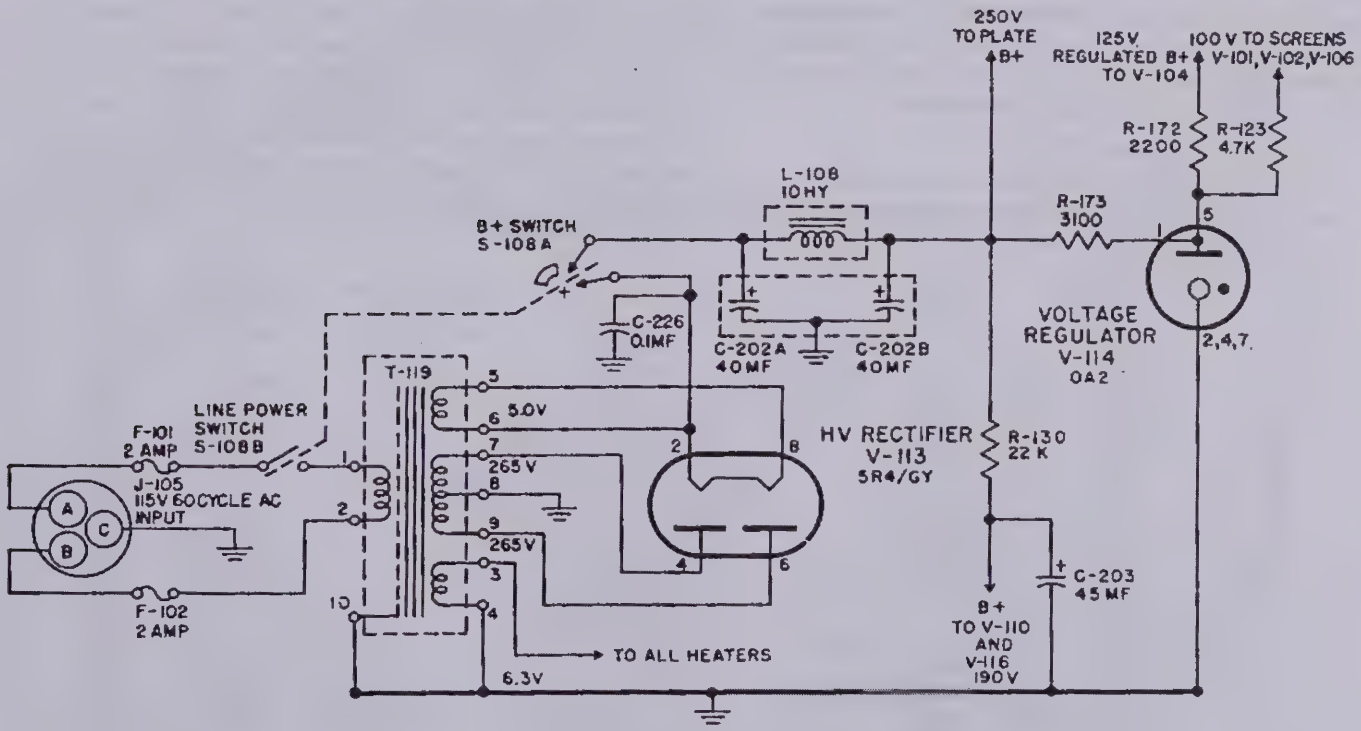


Figure 2—13. Power Supply.

A portion of the audio output is fed back to the 2nd AF amplifier cathode from the voltage divider R-169 and R-121 which is connected between the 6 ohm secondary of output transformer T-120 and ground. The inverse feedback functions when the CONTROL SWITCH S-105A is set to the A.G.C. and M.C.W. positions. The inverse feedback voltage is grounded when the CONTROL SWITCH is set to C.W.O.

(2) AF POWER AMPLIFIER AND OUTPUT (V-111, V-112). *(See figure 2-12.)*

(*a*) The audio frequency power amplifier consists of two 6AQ5 beam power amplifier tubes operating in push-pull, and the output transformer T-120. The audio voltages for the grids of V-111 and V-112 are obtained from the plates of V-110 by means of the coupling capacitors C-187 and C-190. The capacitors C-193 and C-199 across each half of the primary of T-120 are for the purpose of suppressing undesired harmonics.

(*b*) The output circuit of the receiver consists of the connections from the secondaries of the output transformer T-120 to the AUDIO OUTPUT connector J-104 and the PHONES jack J-103. The output transformer T-120 has two secondaries and an internal electrostatic shield which isolates the primary from both secondary windings: a 600 ohm center-tapped winding and a 6 ohm winding. The terminals of both of these windings are brought out to the AUDIO OUTPUT connector J-104 and a loudspeaker of either input impedance or a 600 ohm transmission line can be used with the receiver if connected to the proper terminals of the connector. If phone operation only is desired, a 600 ohm load must be connected across the 600 ohm output or a 6 ohm load must be connected across the 6 ohm output while the phones are being used. This is to insure the proper reflected impedance in the primary of the output transformer T-120.

CAUTION

Do not use the 6 ohm and 600 ohm outputs of the transformer T-120 simultaneously, except as indicated for phones in J-103.

4. CIRCUIT ANALYSIS OF POWER SUPPLY.

(See figure 2-13.)

The power supply of the receiver employs a conventional full-wave rectifier circuit, a capacitance input filter and a gaseous voltage regulator tube. The power transformer T-119 is designed for a nominal power input voltage of 115 volts at a frequency of 60 cycles. The power is supplied to the receiver through the POWER INPUT connector J-105 from which it goes through the fuses F-101 and F-102. The POWER SUPPLY switch S-108 controls the application of the line voltage to the primary of the power transformer T-119. The power transformer T-119 has three secondaries: one high voltage center tapped winding for the B+ supply, a 5 volt winding for the filament of the rectifier tube V-113, and a 6.3 volt winding for the heaters of other tubes and the pilot lights. An internal electrostatic shield isolates the primary from the secondary windings. A 5R4/GY high-vacuum rectifier is used as the high voltage rectifier V-113. The high voltage winding of the transformer is connected to the plates of the H.V. rectifier V-113 and the center-tap is grounded in the usual manner. The inductor L-108 and the capacitor C-202 and C-202B are used as a filter network for the B+ supply. C-226 is the RF bypass capacitor for the B+ supply. An 0A2 gaseous voltage regulator tube is used as the Voltage Regulator V-114 in conjunction with the dropping resistor R-173 to provide a constant source of 150 volts for the high frequency oscillator V-104. Regulated screen voltage for the RF amplifiers and the first IF amplifier is provided through dropping resistor R-123.

SECTION 3

INSTALLATION

1. SCOPE OF THIS SECTION.

Procedures for setting up Radio Receiving Set AN/TRR-5 for operation are given in this section; actual operating procedures are given in Section 4.

2. UNPACKING THE EQUIPMENT.

a. GENERAL.

Unpack the equipment observing the following precautions. Do not tear the waterproof liner; open it carefully so that it can be used again. For the same reason, use a nail-puller or other suitable tool for removing the nails in the shipping case cover so that the cover is not broken up. Upon removing the equipment from the shipping case it is advisable to put the silica gel and waterproof liner back in the shipping case and to retain the case for use in re-shipping the equipment.

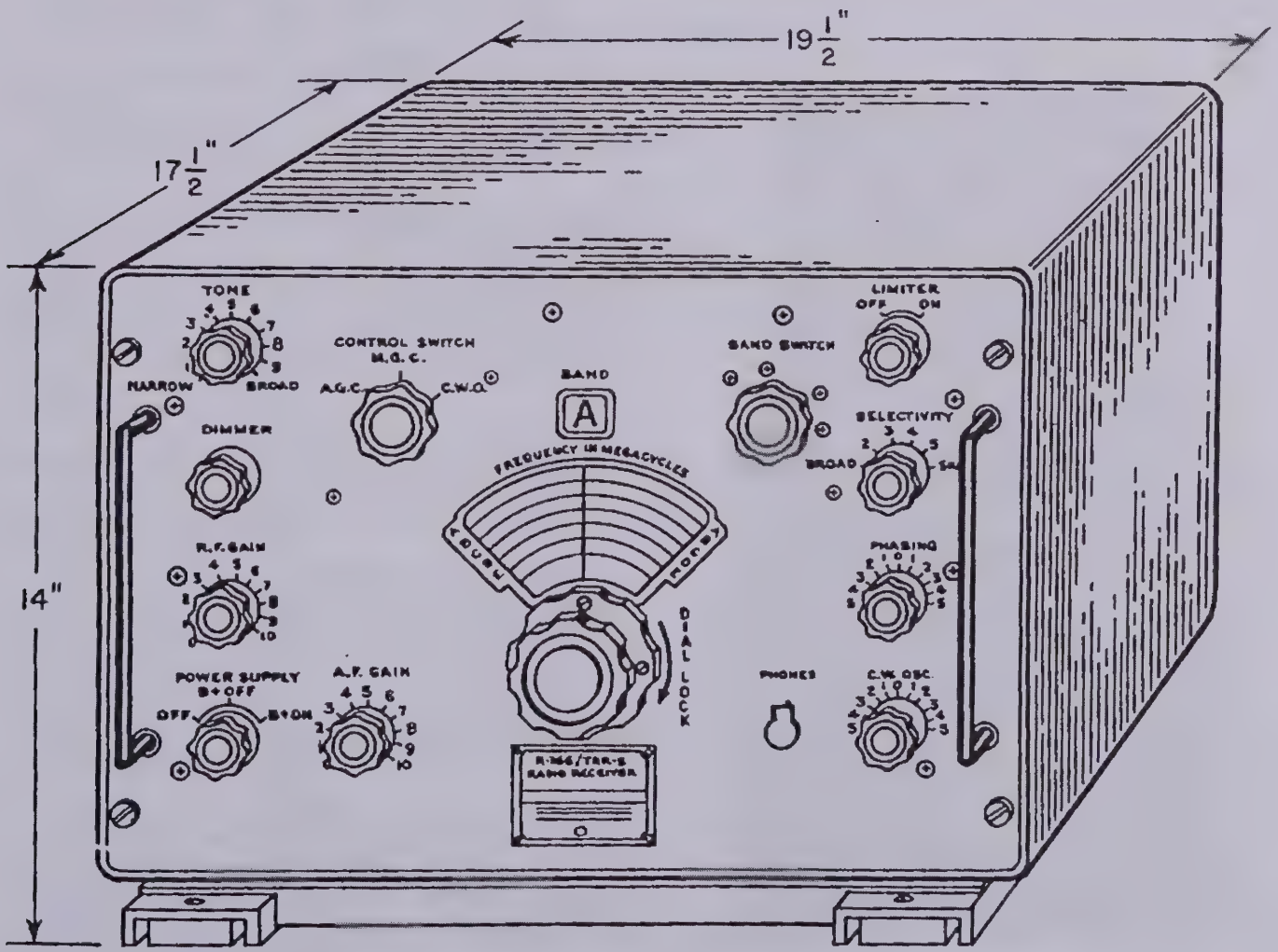


Figure 3—1. Radio Receiver R-366/TRR-5, Outline Drawing.

b. MECHANICAL CHECK.

The equipment should be inspected for possible damage or disarrangement during shipment. Check to see that no nuts, washers, bits of solder or other foreign particles have become lodged where they might cause a short circuit, and tighten any screws or nuts which may have worked loose. A careful search should also be made for broken wires and loose connections since a detailed mechanical inspection at this time may save much inconvenience in the long run. All mechanical controls should be operated in each alternate position, or through their full range of travel, in order to detect any bent shafts or other evidences of abnormal operation. Also check to see that all tubes are well seated in their sockets, that all tube shields are firmly in place and that fuses F-101 and F-102 are in their holders.

3. DIMENSIONAL DATA.

(See figures 3-1 and 3-2.)

Dimensional data given in the referenced figures can be used for estimating space requirements in the variety of operating locations afforded by Radio Receiving Set AN/TRR-5. These include operation on shipboard, at shore station and in the field. These data are also useful in planning storage or transportation facilities for the equipment.

4. POWER REQUIREMENTS.

Radio Receiving Set AN/TRR-5 is operated with an external power source rated at 115 volts AC, single phase, 60 cycle. Power consumption of the equipment is approximately 125 watts at 115 volts, 60 cycles.

5. EQUIPMENT SET-UP.

After removing Radio Receiving Set AN/TRR-5 from the packing case the following steps should be adhered to for setting the equipment up for operation:

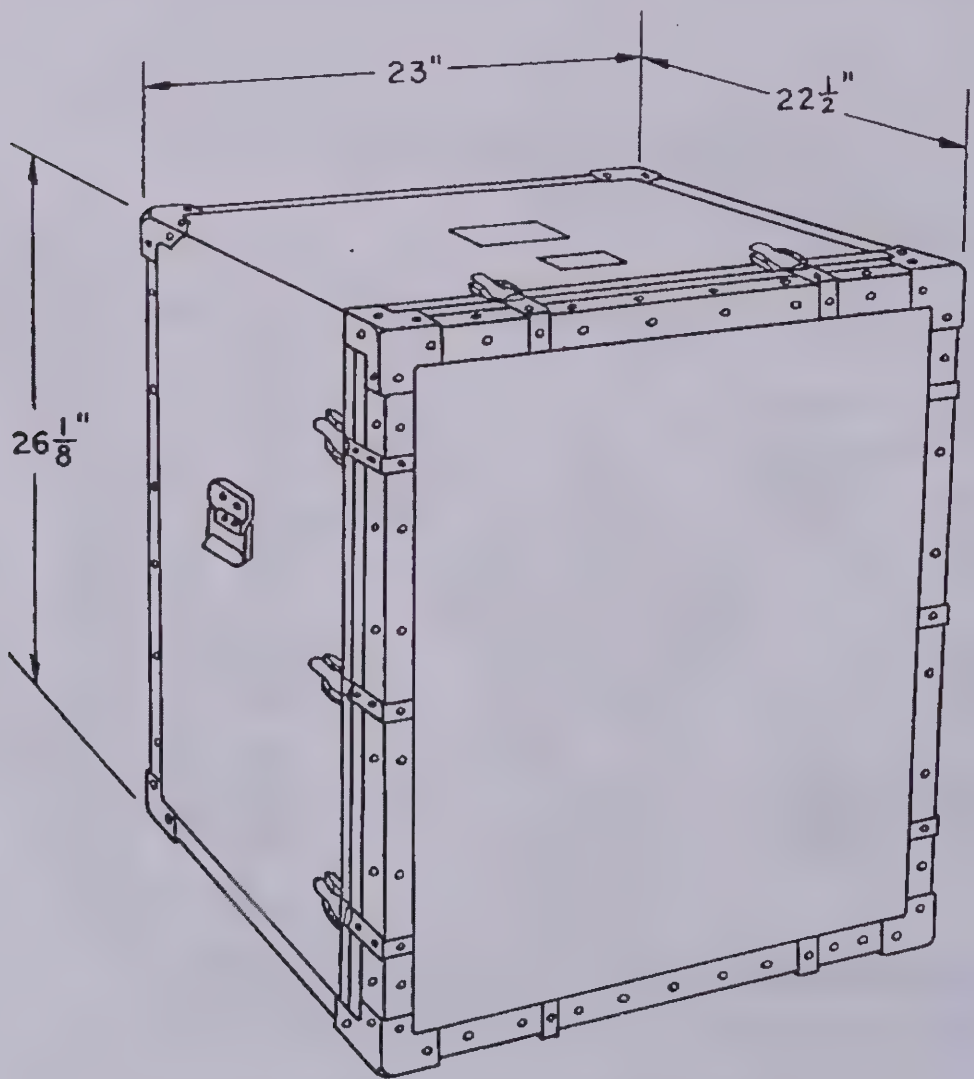


Figure 3—2. Transit Case CY-851/TRR-5, Outline Drawing.

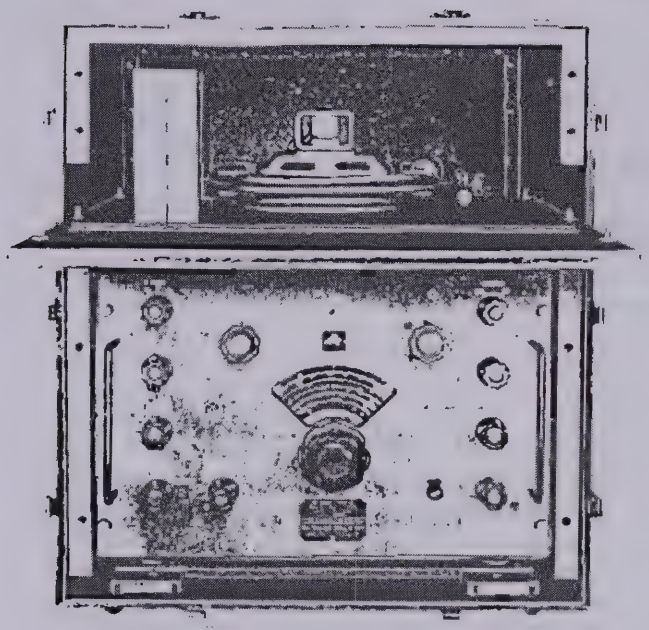


Figure 3—3. Position of Speaker LS-171/U and Maintenance Parts Kit in Transit Case.

(1) Position the case CY-851/TRR-5 so that the lid is uppermost.

(2) Unhook the spring latches around the sides of the case and lock them flat against the case. Remove the lid.

(3) Receiver R-366/TRR-5 may now be lifted out of the transit case.

(4) Loosen the two screw fasteners at the sides of the speaker panel, remove the maintenance parts kit *(see Table 8-5 for contents)* located to the right of the speaker and slide the speaker panel out. Tilt the panel to allow the heads of the rear screw fasteners to pass the bracket inside the transit case.

(5) Remove the strap that holds the ends of the cables and remove the cables from the rear of the speaker.

(6) Place the case CY-851/TRR-5 in its upright position and place receiver R-336/TRR-5 on top of the case *(see figure 3-4)*.

(7) Place the speaker cable W-101 through the slot in the side of the speaker panel and secure the panel to the transit case by means of the screw fasteners. The hinged portion of the panel should be placed toward the bottom of the transit case.

(8) Connect the speaker cable to the AUDIO OUTPUT connector J-104 and the power cable to the POWER INPUT connector J-105.

Note

The speaker cable connector is wired for 6 ohm (loudspeaker) operation.

6. INITIAL ADJUSTMENTS.

Before installing the equipment, the following test operations should be performed:

a. Connect the 115v, single ph, 60 cycle power source to the receiver through the power cables.

b. Connect a signal generator to the receiver input through a standard dummy antenna. If no signal generator is available, outside station signals may be used for the tests. In that event an antenna should be used and connected by means of connector J-301 to ANTENNA INPUT jack J-101.

c. Set ANTENNA IMPEDANCE switch to either LOW or HIGH IMPEDANCE position as installation requires.

d. Adjust the signal generator for a signal modulated 30 percent at 1000 cycles.

e. Turn the power switch to B+ OFF position and allow 1 minute for the tubes to warm up, then switch to B+ ON position.

f. Adjust the controls on the front panel as follows:

Controls	*Position*
LIMITER	OFF
TONE	BROAD
CONTROL SWITCH	M.G.C.
C.W. OSC.	zero
A.F. GAIN	10
R.F. GAIN	10

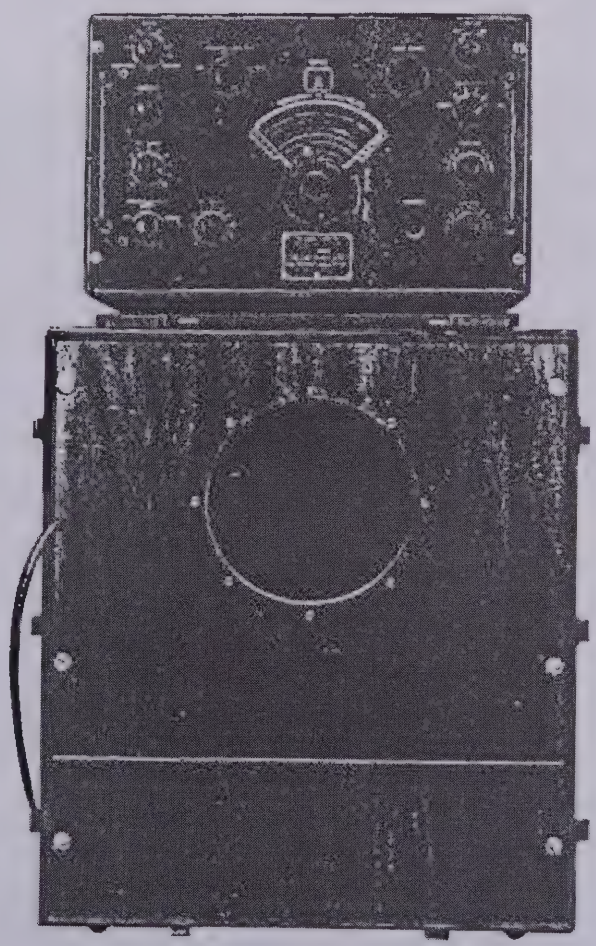


Figure 3—4. Radio Receiving Set AN/TRR-5, Set-up for Operation.

Controls	*Position*
PHASING	zero
SELECTIVITY	BROAD
BAND SWITCH	E band
Main Tuning Knob	Desired Frequency

g. Tune the receiver to the signal generator frequency, or to the frequency of a radio station transmitting a modulated signal by varying the main tuning knob slowly until the test signal comes in at maximum strength.

h. Adjust the R.F. GAIN control to a position to give a suitable listening level in the headphones or loudspeaker. If the signal is too strong the receiver may overload and the R.F. GAIN must be decreased until the distortion disappears. Turning the R.F. Gain control knob counter-clockwise should result in decreased volume.

i. Varying the setting of the A.F. GAIN control should result in decreased volume when the control is turned counterclockwise.

j. Turn the CONTROL SWITCH to A.G.C. The R.F. GAIN control now has no effect, and the A.F. GAIN control should be used to increase or decrease the volume. The fading of any signals will be minimized with the A.G.C. switch on.

k. Disconnect the signal generator and monitor a known station. Note receiver performance for comparison with receiver performance after the receiver has been installed.

l. Detune the receiver so that only background noise is heard. Turn the tone control from BROAD to NARROW and note the lowering of the background noise as the control is rotated.

m. Similarly, turn the LIMITER control ON and listen for noise reduction.

n. Turn the signal generator modulation OFF, or tune to a station transmitting an unmodulated signal. Turn the CONTROL SWITCH to the C.W. OSC. position and rotate the C.W. OSC. control slowly in either direction from zero noting the change in pitch of the audio beat note. Leave the C.W. OSC. vernier at a setting producing an audible beat note of approximately 1000 cycles.

o. Turn the SELECTIVITY switch to position 2. The receiver will tune more sharply and as the control is advanced to SHARP position, the receiver tuning should become sharper at each successive setting.

p. Repeat steps *c* to *o* for each band.

q. If the receiver fails to operate as indicated in the preceding paragraphs, the fault may be located by reference to Sections 4, 5, and 6.

r. If desired, a 455 kc input Panoramic Adapter may be used as a monitor by connecting to the SCANNING OUTPUT jack J-102. Connector J-302 and adapter E-301 are provided to connect the Panoramic Adapter to the receiver.

s. If such operation is desired, plug the headphones into the PHONES jack J-103. The headphones must have an impedance of 600 ohms and terminate in plug PL-55.

CAUTION

To prevent damage to the receiver when only headphones are used load the AUDIO OUTPUT jack J-104 with 600 ohms across A and D or 6 ohms across B and C.

SECTION 4

OPERATION

1. INTRODUCTION.

Radio Receiving Set R-366/TRR-5 is a 16 tube superheterodyne receiver covering the radio frequency spectrum in 5 bands between the limits of 540 kilocycles and 30,000 kilocycles.

The four following audio and RF output channels are available.

a. Scanning amplifier output jack J-102 for use with 455 kc input Panoramic Adapter.

b. 6 ohm AUDIO OUTPUT jack J-104, terminals B and C for use with loudspeaker LS-171/U.

c. 600 ohm center tap AUDIO OUTPUT jack J-104, terminals A, B and D, for use with 600 ohm line.

d. 600 ohm PHONES output jack J-103 for use with 600 ohm headphones.

2. EQUIPMENT CONTROLS AND RECEPTACLES.

(See figures 4-1 and 4-2.)

The operating controls of Radio Receiver R-366/TRR-5 are all located on the front panel, with the exception of the ANTENNA INPUT switch, which is located on the rear of the chassis. All receptacles to which external connections must be made are on the rear of the chassis, with the exception of the PHONES jack which is on the front panel.

The function of each control and receptacle is briefly

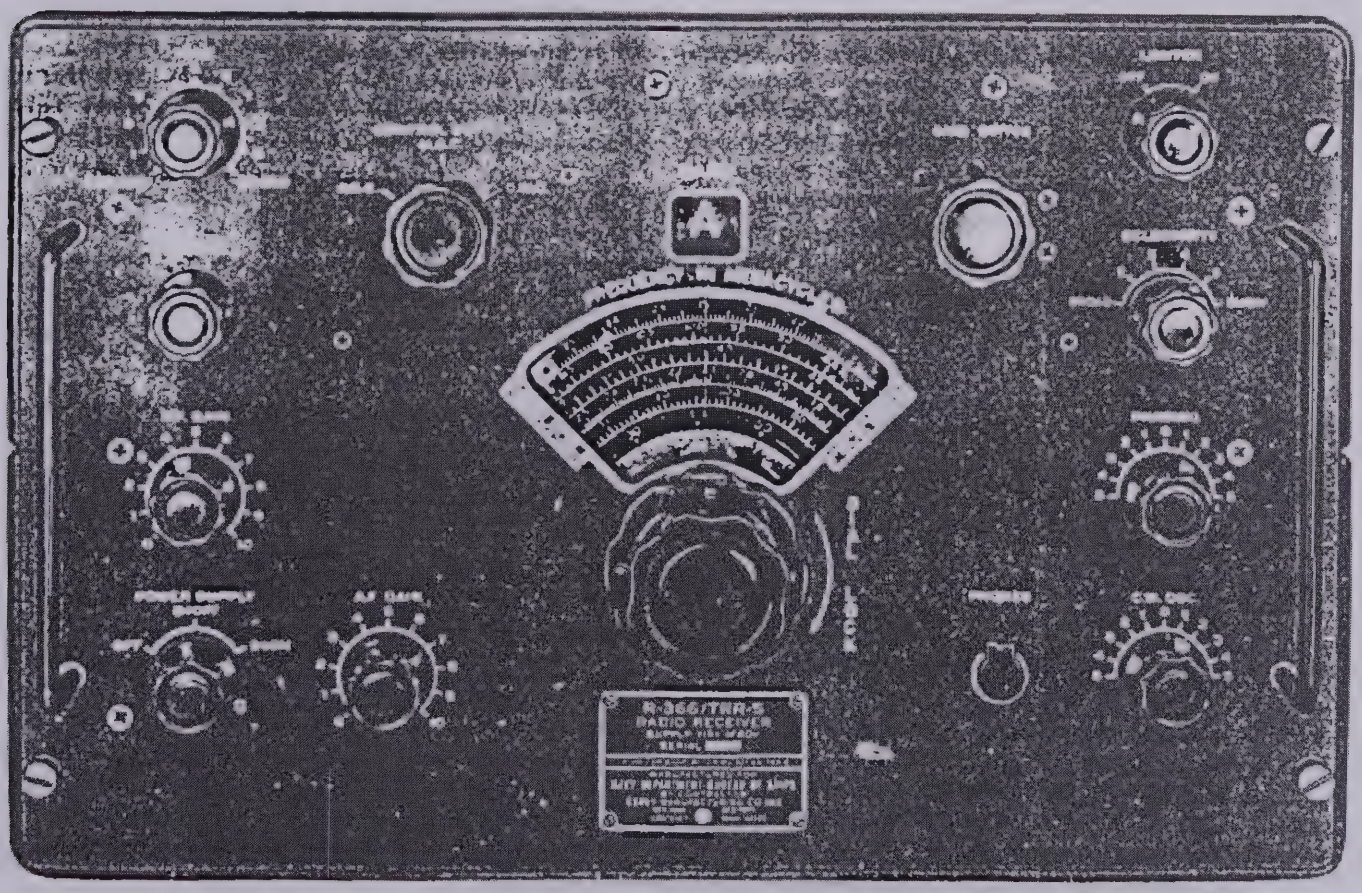


Figure 4—1. Radio Receiver R-366/TRR-5, Controls and Receptacles.

described by an adjacent panel marking. In the following sub-paragraphs, the panel marking or legend is explained and the applicable symbol designation is given in parentheses after the legend for aid in identifying the circuit component.

a. POWER SUPPLY SWITCH (S-108). – The POWER SUPPLY switch is located at the lower left side of the front panel of the receiver. With the switch in the B+ OFF position, filament current is supplied to all the tubes. In the B+ ON position power is supplied to the screen grids and plates of the tubes. In the OFF position, power is completely cut off from the receiver.

b. DIMMER (S-102, R-101).—The DIMMER control is located on the left side of the front panel of the receiver. When the control is in the extreme counterclockwise position the lights which illuminate the dial and band indicator are turned off. Turning the DIMMER control clockwise turns these lights on and increases their brilliance.

c. MAIN TUNING DIAL.—The main tuning dial is located at the center of the front panel of the receiver. It has five scales calibrated in accordance with the frequency coverage of the five bands. A hairline indicates the frequency setting which decreases with clockwise rotation of the tuning knob. The calibration accuracy is ±1%.

d. BAND SWITCH.—The band switch is located at the top right of center of the front panel. In order to change bands, the knob must be rotated one full revolution for each band.

e. TONE CONTROL (R-164).—The TONE CONTROL knob is located at the top left portion of the front panel. The knob controls the movement of potentiometer (R-164) which increases or reduces the amount of resistance in the tone control circuit. This varies the frequency response of the audio amplifier. When the control is set at the position marked NARROW the audio frequencies above 400 cycles are attenuated. In the BROAD position the full audio frequency range is available. For C.W.O. operation this control is automatically rendered inoperative.

f. CONTROL SWITCH (S-104).—The CONTROL SWITCH is a three section switch assembly on the front panel of the receiver. It has three positions; A.G.C., M.G.C. and C.W.O. With the switch in the A.G.C. position the gain of the RF amplifier and 1st IF amplifier stage is controlled by the automatic gain control circuit. It is recommended that when receiving voice transmission the CONTROL SWITCH be put in the A.G.C. position. With the switch in the M.G.C. position, the automatic gain control feature is shut off and the R.F. GAIN control is used to control the gain of the RF and IF sections of the receiver. When the CONTROL SWITCH is turned to the C.W.O. position, the C.W. oscillator is turned on and the A.G.C. remains inoperative. This is required for the proper reception of C.W. (continuous wave) code signals. When the C.W. oscillator is used, the pitch of the signals heard by the operator can be adjusted by means of the C.W. OSC. control. The tone control is inoperative in the C.W.O. setting of the CONTROL SWITCH.

g. C.W. OSC. (C-181).—The C.W. OSC. vernier is located at the bottom right side of the front panel. Turn-

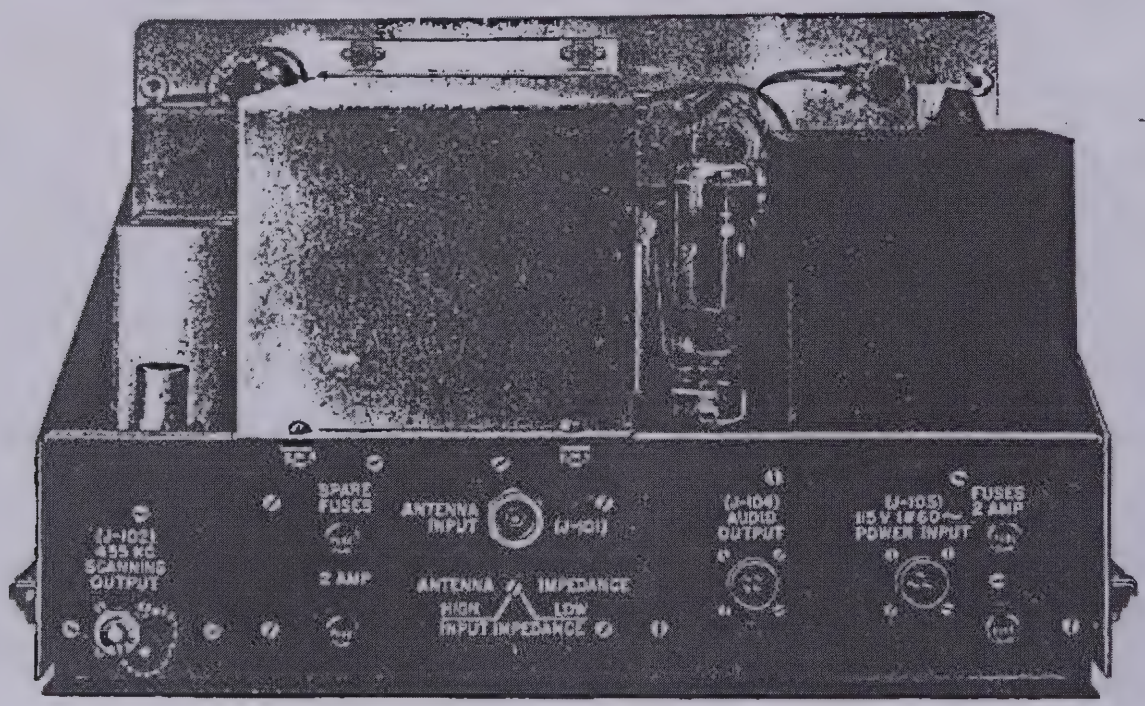


Figure 4—2. Radio Receiver R-366/TRR-5, Rear View Controls and Receptacles.

ing the knob varies the capacity of C-181 which varies the output frequency of the CW oscillator to produce an audible beat note suitable to the operator. The oscillator is tuned to a frequency of 455 Kilocycles at 0 on the C.W. OSC. scale.

h. A.F. GAIN CONTROL (R-158).—The A.F. GAIN control knob is located at the lower left center of the front panel. Turning the knob moves the variable arm of the potentiometer R-158, which in turn varies the amount of audio grid voltage, thereby controlling the audio output of the receiver. Audio output increases as the control is turned clockwise towards 10 on the scale.

i. R.F. GAIN CONTROL (R-133).—The R.F. GAIN control is located directly to the left of the main tuning dial knob. Turning the knob moves the variable arm of the potentiometer R-133 which acts as a common cathode resistor for the first and second RF amplifiers and the first and second IF amplifiers. By varying this resistance the DC bias of these tubes can be changed thus controlling the sensitivity of the receiver. Clockwise rotation of the R.F. GAIN control increases the gain of the RF and IF amplifier sections. In the presence of very strong signals, the receiver may become overloaded, in this event the R.F. GAIN should be decreased until the distortion disappears. The R.F. GAIN control should be used to regulate volume with the CONTROL SWITCH on M.G.C. or C.W.O., and the A.F. GAIN control set at maximum. The R.F. GAIN control is inoperative when the CONTROL SWITCH is set to A.G.C.

j. SELECTIVITY SWITCH S-104 AND PHASING CONTROL C-163.—The crystal filter SELECTIVITY controls are located directly below the LIMITER switch at the right side of the front panel. When the SELECTIVITY switch is set at BROAD, the crystal filter and the PHASING control are inoperative. With the SELECTIVITY pointer set at any point between 2 and SHARP, the crystal filter is in operation, with the selectivity increasing as the knob is advanced towards SHARP. The PHASING control C-163 is then used to tune the bridge circuit to reject interfering signals.

k. LIMITER SWITCH (S-106). — The LIMITER switch is located in the upper right hand corner of the receiver. This switch places the limiter diode in series with the audio circuit and prevents sudden high values of audio voltage or noise peaks from reaching the audio amplifier. The threshold is automatically maintained by the average value of signal input to the limiter circuit. When noise interference is present the LIMITER switch should be set to ON position. Some distortion may occur when signals of high modulation percentage are being received.

3. OPERATING THE EQUIPMENT.

(See figure 4-2.)

a. Connect speaker LS-171/U to AUDIO OUTPUT jack J-104 using the 6 foot Cable Assembly W-101.

b. Turn the POWER SUPPLY control to B+ OFF for 1 minute then to B+ ON.

c. Turn the BAND SWITCH knob for the desired band.

d. Set the CONTROL SWITCH at A.G.C., M.G.C. or C.W.O. according to the type of signal to be received.

e. Set the LIMITER switch to OFF.

f. Set the TONE control to BROAD.

g. Set the SELECTIVITY switch to BROAD.

h. Advance the R.F. GAIN control between 8 and 10, depending on receiving conditions.

i. Advance the A.F. GAIN control until the desired volume is reached. The receiver is now adjusted for reception within its frequency range.

4. PANORAMIC RECEPTION.

Radio Receiving Set AN/TRR-5 is equipped with a 72 ohm outlet so that it may be operated with a panoramic adapter unit or similar equipment for the visual reception of radio signals. Connector J-302 and adapter E-301 are provided to make connections to such auxiliary equipment.

5. IMAGE RESPONSE.

The high frequency oscillator operates at a frequency which is 455 kc higher than the incoming signal. If the frequency of the incoming signal is 29,090 kilocycles, then the oscillator frequency will be 29,545 kc. Mixing the two frequencies will produce a 455 kilocycle signal. However, if a 30,000 kilocycle signal should also be present, it will also mix with the high frequency oscillator to produce a 455 kilocycle signal. This latter signal is known as the image frequency of the 29,090 kilocycle signal. The operator should bear in mind, when working with strong signals on the high frequency band, that an image signal will appear at a dial reading approximately 910 kilocycles below the correct dial reading. If a signal is received which is too weak, tune to a point on the dial which is 910 kilocycles higher and see if the signal is present.

6. MCW OR PHONE RECEPTION.

After the equipment has been placed in operation as explained in Section 4 paragraph 3 turn the CONTROL SWITCH to either M.G.C. or A.G.C. position. The equipment is now ready for M.C.W. operation. The following sub-paragraph should be adhered to for proper M.C.W. operation.

a. With the CONTROL SWITCH in the M.G.C. position care should be exercised not to advance the R.F. GAIN control to a point where IF or audio amplifier overload occurs. Such overload is indicated by excessive distortion. It is recommended that the A.F. GAIN control be set at 10 and audio output adjusted by means of the R.F. GAIN control.

b. If a signal is weak and partially obscured by background noise and static, turn the TONE control toward the NARROW position. The best setting must be determined by trial.

c. When a signal is accompanied by static peaks or noise pulses of high intensity improved reception will be obtained by setting the LIMITER switch to ON.

d. The selectivity of the receiver may be adjusted by means of the crystal filter. The normal setting of the SELECTIVITY control for M.C.W. reception is at one of the positions affording broad selectivity. Position BROAD or 2 is recommended. Selectivity may be progressively increased by advancing the SELECTIVITY switch to positions 3, 4, 5 and SHARP although advancing the control too far will increase selectivity to a degress where M.C.W. signals may become unintelligible due to the narrowing of the IF bandwidth. The noise level is also reduced in the crystal positions. It may be necessary to adjust the R.F. GAIN and the A.F. GAIN controls in the crystal positions.

e. The PHASING control is used to eliminate or attenuate undesired signals and operates only in the 2, 3, 4, 5 and SHARP positions of the SELECTIVITY switch. The normal setting of this control is at 0 for M.C.W. operation. If, after a signal has been tuned in, an interfering signal causes a heterodyne or a whistle, the PHASING control should be adjusted until the interference is reduced to a minimum.

7. C.W. RECEPTION.

After the equipment has been placed in operation as described in Section 4 paragraph 3, the following operations for C.W. reception should be followed:

a. Place the CONTROL SWITCH in the C.W.O. position and set the C.W. OSC. control to 1.

b. Adjust receiver gain by varying the R.F. GAIN control. The A.F. GAIN control should be set at 10.

c. The action of the LIMITER switch is similar to that described in Section 4 paragraph 6 (c).

d. As was previously stated, the selectivity of the receiver may be increased by means of the crystal filter. The action of the SELECTIVITY and PHASING controls will be similar to that described in Section 4, paragraphs 2 (j) and 6 (e). It may be desirable to utilize the full range of crystal filter selectivity in CW reception. Maximum selectivity is obtained with the selectivity control set at SHARP.

SECTION 5

OPERATOR'S MAINTENANCE

WARNING

Operation of this equipment involves the use of high voltages which are dangerous to life. Operating personnel must at all times observe safety regulations. Do not change tubes or make adjustments with the high voltage supply on. Do not depend on switches for protection —always remove the power input plug. Under certain conditions, even with the power removed, dangerous potentials may exist in circuits, because of charges retained by capacitors. Discharge and ground circuits by means of a grounding rod or similar device prior to touching them. Do not ground any high voltage points when the equipment is operating. Grounding them will blow fuses, burn out circuit elements, and may cause personal injury.

1. INTRODUCTION.

This section is limited to a discussion of operator's duties in relation to maintenance of Radio Receiver R-366/TRR-5. The operator is assumed to have little or no technical knowledge insofar as the theory of operation of the equipment is concerned. Therefore he will not be required to make any of the fine adjustments or intricate changes which demand the attention of experienced maintenance personnel. However the operator should be capable of making the adjustments described in detail in Section 4. In addition the operator is required to replace fuses and tubes when one or more of them has failed. It is expected that the operator will usually make changes or adjustments during the course of battle. This fact will further limit his maintenance activity to those adjustments relatively short in time. See figure 5-3 for operator's trouble shooting chart.

2. LAMPS.

Radio Receiver R-366/TRR-5 uses lamps I-101, and I-102. These lamps operate from the 6.3 volt filament supply. If either or both lamps fail during the course of operation replace them immediately with new lamps from the maintenance parts kit in the transit case. Should the replacements fail immediately or within a short time after installation, it can be assumed that the cause of failure is not the lamp but a more serious failure in the receiver circuits themselves. In such an event call upon an experienced maintenance man for assistance. In an emergency the equipment can be operated without the use of the lamps.

3. TUBES

In the event that the equipment should fail during operation, a quick check may reveal a defective tube which can be immediately replaced. An experienced operator can readily detect a defective tube by checking to see if it is lit, or by touching them to see if they are warm. If the replacement fails immediately or within a short time after installation it can be assumed that the cause of failure is hidden in the circuits themselves. In

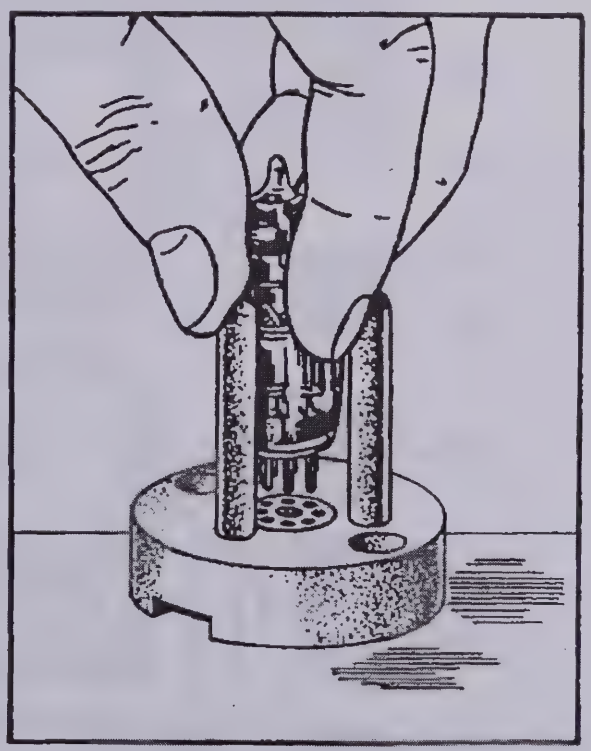


Figure 5—1. Using Miniature Tube Pin Straightener.

this event, an experienced maintenance man should be called in to repair the equipment. For use of miniature tube pin straightener see figure 5-1.

WARNING

Operating personnel must not conduct any checks or tests inside the equipment which require the attention of highly trained maintenance personnel. Figure 5-2 shows the location of all tubes in the equipment. The tube type numbers are also indicated in order to facilitate replacements.

4. FUSES.

Radio Receiver R-366/TRR-5 uses two fuses F-101 and F-102 to protect the receiver circuits and components from excessive surges. These fuses are located in the 115-volt 60 cycle, single phase power supply line. A burnt out fuse can easily be detected after removal from the fuse holder by observation or, if necessary by making a continuity check across the fuse terminals with an ohmmeter. The burnt out fuse should be replaced with one from the spare fuse holders located on the rear panel. Replace the spare fuses as soon as possible. Additional fuses are provided in the maintenance parts kit. If the replacement blows immediately or within a short time after installation the cause of failure is in the receiver circuits or the power supplied to the equipment. Figure 4-2 shows the location of the fuses and their spares.

5. OPERATOR'S CHECKS.

At the beginning of each watch the operator who comes on duty should make the following checks before operating the equipment.

a. See that all plugs and jacks are properly connected.

b. See that all tubes are lit, or are warm to the touch.

c. See that the fuses are not burned out. Remove each fuse and submit it to a continuity check with an ohmmeter if tubes and dial lamps do not light.

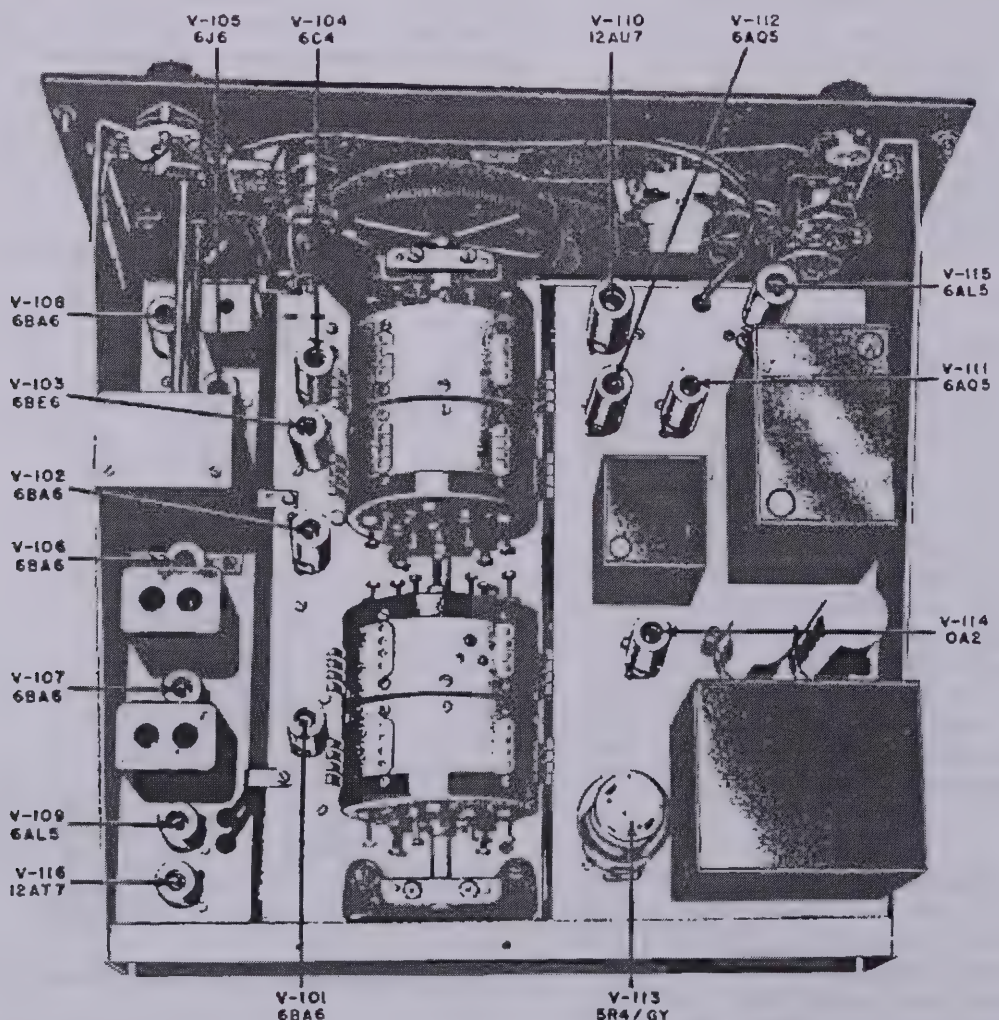


Figure 5—2. Tube Locations.

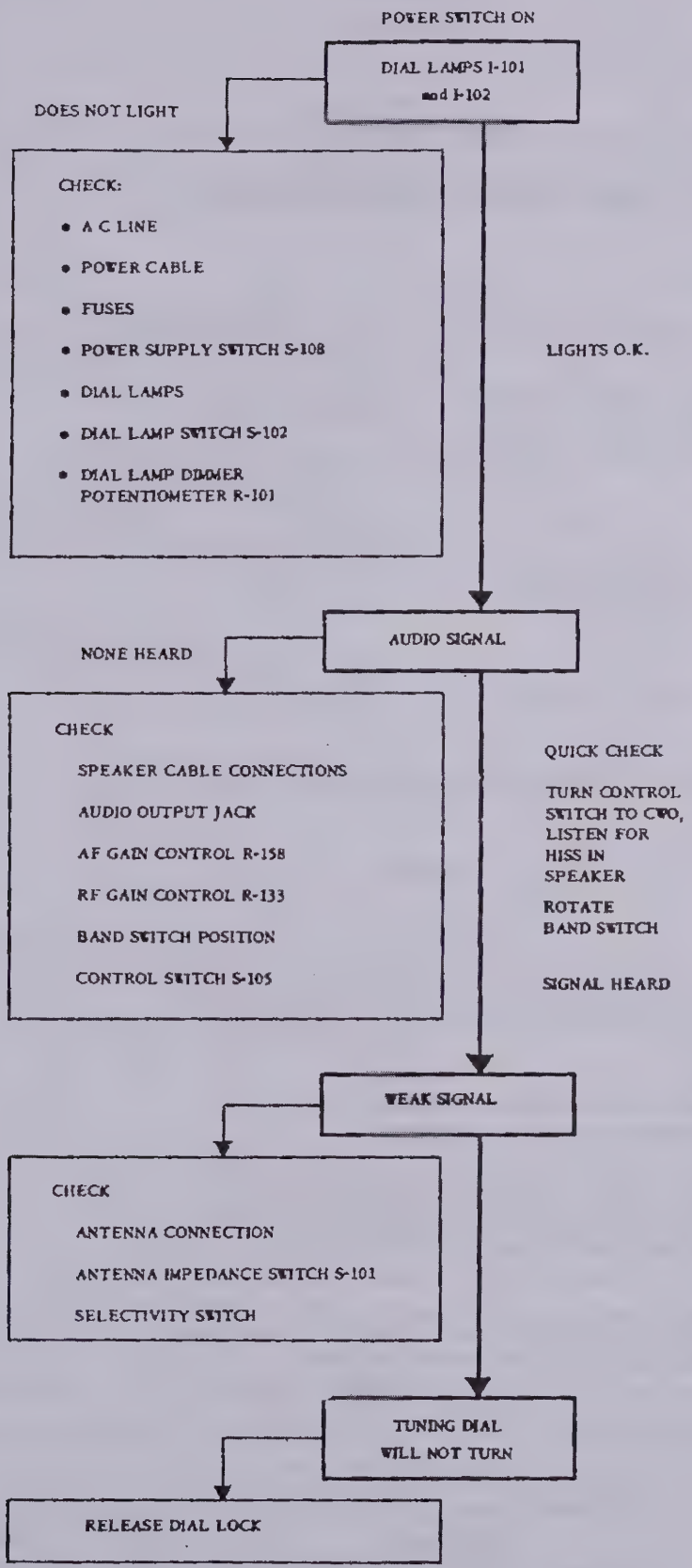


Figure 5—3. Operator's Trouble Shooting Chart.

SECTION 6

PREVENTIVE MAINTENANCE

1. ROUTINE MAINTENANCE CHECK CHARTS.

(See table 6-1.)

Periodic mechanical and electrical checks should be made to assure continuity of service at peak performance of Radio Receiving Set AN/TRR-5. Table 6-1 sets forth the procedure to be followed.

Note

The attention of maintenance personnel is invited to the requirements of Chapter 67, of the *Bureau of Ships Manual*, of the latest issue.

2. LUBRICATION.

There are three mechanical assemblies or parts which require periodic lubrication in Radio Receiver R-366/TRR-5. Place one or two drops of oil (Federal Standard Stock Catalog No. W-14-0-0595) once every six months on the following:

a. Main drive shaft bearing.

b. Disassemble the dial lock assembly as directed in paragraph and lubricate the thread on the male lock plate and the inner conical surface of the dial lock knob against which the spring arms of the spring assembly bear.

c. The wheel on the detent plunger assembly and the sliding joint between the plunger assembly and the detent block.

TABLE 6-1. ROUTINE MAINTENANCE CHECK CHARTS

WEEKLY		
WHAT TO CHECK	HOW TO CHECK	PRECAUTIONS
1. Antenna	Inspect antenna to make sure that it is not damaged, grounded or shows signs of endangering personnel or structures.	
2. Lead-in	Inspect lead-in insulation and entry point for signs of possible short circuiting (grounding).	
3. Connections	Inspect external connections for signs of corrosion. Inspect antenna connection to receptacle (J-103). Examine for loose connections and signs of corrosion.	
4. Fuses	Inspect fuses F-101 and F-102, and fuse holders for corrosion, cracks and lack of tension sufficient to insure good contact. Refill spare fuse holders if required.	

MONTHLY		
WHAT TO CHECK	HOW TO CHECK	PRECAUTIONS
1. Sensitivity	Perform sensitivity checks as outlined in section 7 paragraph 5.	

QUARTERLY		
WHAT TO CHECK	HOW TO CHECK	PRECAUTIONS
Interior sections of receiver	Remove receiver from cabinet. Remove all covers.	Disconnect all power before performing the following operations. Upon completion reconnect power and check for satisfactory operation.
1. Wiring	Inspect all wiring for signs of wear, broken or split insulation, discoloration due to overheating.	
2. Terminal boards	Inspect all terminal boards for cracks, dirt, loose connections, and terminals for corrosion.	
3. Filter Capacitors	Inspect electrolytic capacitors C-185, C-191, C-192, C-202 and C-203 for leakage of dielectric and for bulging.	
4. Resistors and capacitors	Inspect resistors and capacitors for cracks, blistering and discoloration due to overheating.	
5. Power transformer	Inspect power transformer T-119 for signs of excessive heating.	
6. Fuses	Inspect fuses F-101 and F-102 and fuse holders for corrosion, cracks and lack of tension sufficient to insure good contact. Refill spare fuse holders if required.	
7. Switches	Inspect switches S-101, S-104, S-105, S-106 and S-108 for dirty or corroded contacts, cracked and broken insulation, and loose connections. Check adjustment of muting switch, S-107.	
8. Mechanical fittings	Inspect all mountings, machine screws and nuts for looseness. Inspect moving parts for binding and wear.	
9. Unshielded variable capacitors	Inspect unshielded variable capacitors C-161 and C-181 for dirt and corrosion and broken or cracked insulation.	
10. Main tuning capacitor	Inspect main tuning capacitor C-108 for dirt and corrosion, cracked insulation and loosened parts.	Extreme care should be taken to see that the plates of the capacitor are not bent or damaged as this will cause changes in dial calibration and loss of sensitivity.
11. Coil turret	Inspect bearings and detent mechanism for dirt, binding and wear. Inspect contact assembly blocks or each turret-half and the mating portion on the chassis. Examine for broken insulation, dirt, wear and mechanical misalignment.	If alignment of the coil turret is indicated follow the procedure given in section 7 paragraph 4a(2).
12. Wiper Contacts	Inspect for dirt, corrosion, cracked or broken insulation and good contact.	
Exterior of receiver		
1. Knobs	Inspect knobs for cracks and breaks. Tighten loose set screws.	
2. Power Cable	Inspect power cable and connectors for worn or frayed insulation, corroded and loose connections and loosened fittings and screws.	
3. Audio cable	Inspect audio cable and connector for worn or frayed insulation, corroded and loose connections and loosened fittings and screws.	

FAILURE REPORTS

A FAILURE REPORT must be filled out for the failure of any part of the equipment whether caused by defective or worn parts, improper operation, or external influences. It should be made on Failure Report, form NBS-383, which has been designed to simplify this requirement. The card must be filled out and forwarded to BUSHIPS in the franked envelope which is provided. Full instructions are to be found on each card.

Use great care in filling the card out to make certain it carries adequate information. For example, under "Circuit Symbol" use the proper circuit identification taken from the schematic drawings, such as T-803, in the case of a transformer, or R-207, for a resistor. Do not substitute brevity for clarity. Use the back of the card to completely describe the cause of failure and attach an extra piece of paper if necessary.

The purpose of this report is to inform BUSHIPS of the cause and rate of failures. The information is used by the Bureau in the design of future equipment and in the maintenance of adequate supplies to keep the present equipment going. The cards you send in, together with those from hundreds of other ships, furnish a store of information permitting the Bureau to keep in touch with the performance of the equipment of your ship and all other ships of the Navy.

This report is not a requisition. You must request the replacement of parts through your Officer-in-Charge in the usual manner.

Make certain you have a supply of Failure Report cards and envelopes on board. They may be obtained from any Electronics Officer.

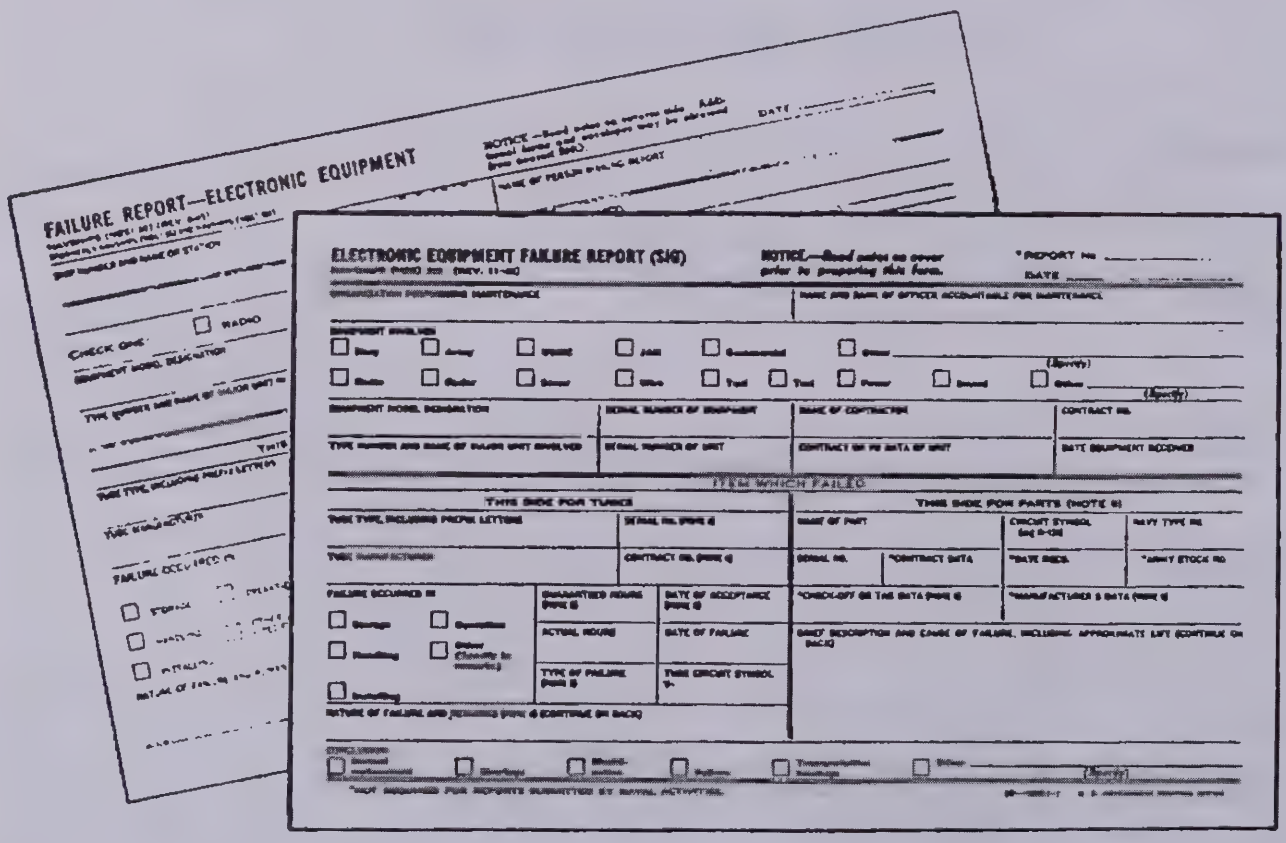

FAILURE REPORT—ELECTRONIC EQUIPMENT
ELECTRONIC EQUIPMENT FAILURE REPORT (SHIP)
NOTICE—Read notes on reverse side before preparing this form.
THIS SIDE FOR TUBES
THIS SIDE FOR PARTS (NOTE 6)
ITEM WHICH FAILED

Figure 7—1. Failure Report, Sample Form.

SECTION 7

CORRECTIVE MAINTENANCE

1. INTRODUCTION.

The procedures, illustrations, and tables in this section are aimed at assisting maintenance personnel to repair and adjust Radio Receiver R-366/TRR-5. When the equipment has failed in operation the source of the trouble must be located, the defect remedied, and the equipment restored to operating condition. The procedure for corrective maintenance is, therefore, presented in the following order:

Localization of Trouble (par. 2)
Removal of Chassis from Case (par. 3)
Trouble Shooting and repair (par. 4)
Sensitivity Tests (par. 5)
Alignment procedure (par. 6)

Note

Maintenance personnel must fill out a failure report for each part, component, tube or mechanical assembly repaired or replaced. See sample failure report shown in Figure 7-1.

2. LOCALIZATION OF TROUBLE.

a. INTRODUCTION.—Trouble shooting problems in Radio Receiver R-366/TRR-5 may be solved in the same manner as in other communication receivers. Inspect the entire equipment in an attempt to isolate the faulty unit. Check the cables and connectors. Determine that required power is applied to the power supply. The tuning dial pilot lights I-101 and I-102 serve to indicate power application. Check the position of the ANTENNA IMPEDANCE selector switch S-101. Check both phones and speaker output at audio output jacks. Check to insure that panel operating controls are properly employed as described in Section 4.

Consult the TROUBLE SHOOTING chart, figure 7-2 for aid in locating a faulty stage.

One major source of improper equipment operation is incorrect calibration and alignment control adjustment. Complete calibration and alignment procedures are given in this section, as an aid in bringing the equipment up to the highest sensitivity and maintaining accurate calibration *(See par. 6)*.

b. GAIN MEASUREMENTS. *(See table 7-3.)*

3. REMOVAL OF CHASSIS FROM CASE.

Upon determining that the trouble source is in an unexposed area of Radio Receiver R-366/TRR-5, the next step is to remove the chassis from its case and trace the trouble to a faulty component.

To open the receiver case, disconnect all connecting cables from rear of chassis. Loosen and disengage four captive screws (two at each side) on front panel. Grasp the handles at each side of the front panel and pull. The chassis will slide out on its rails until the stop is reached. To remove entirely tilt up front of chassis by handles and lift the entire unit out of the holding notches.

To remove the turret cover, remove the two screws on the top center of the front panel and the two round head screws at the rear of the cover and lift cover off. Do not bend, break or lose the insulating strip which is located between the turret cover and the front panel.

4. RADIO RECEIVER R-366/TRR-5 TROUBLE SHOOTING AND REPAIR.

a. TROUBLE SHOOTING DATA.
SCHEMATIC DIAGRAM.—Figure 7-17.
PRACTICAL WIRING DIAGRAM.—Figure 7-18.
TROUBLE SHOOTING CHART.—Figure 7-2.
VOLTAGE AND RESISTANCE DATA.—Figures 7-13, 7-14 and 7-15.
WINDING DATA.—Table 7-6.
PARTS LOCATIONS.—Figures 7-3 to 7-12.

b. REPAIR AND ADJUSTMENT DATA.

(1) TUBE CHANGE.—In order to avoid any possible upset of alignment and calibration, avoid interchanging tubes and replace tubes only when a sensitivity test indicates this need. *(See par. 7-5.)*

With the exception of the power supply rectifier, miniature tubes are used throughout this unit. These tubes are held in place by spring-loaded tube shields. To remove a tube, depress and turn the tube shield counterclockwise, then lift. Grasp the tube with the thumb and two fingers and pull straight out of the socket. If the receiver has been in operation for some time the tubes will be hot and a cooling off period will be required before they can be removed by hand. Hot tubes may be removed immediately if a tube-puller is available. Before plugging in another tube straighten any bent tube pins by using the special tool shown in figure 5-1, if it is available.

(2) ACCESS TO COMPONENTS. *(See figures 7-3 through 7-11.)*—All components not contained in shield cans are shown in figures 7-3 to 7-6.

In accordance with common practice, the IF interstage transformers and associated components are enclosed in cans fastened to the chassis. These cans are readily re-

noved by removing the nuts on the can spade lugs on the nderside of the chassis.

Access to components within the antenna, RF amplifier and HF oscillator stages requires a special procedure. These components are contained in four turret-halves nounted axially on a shaft and comprise the coil turret assembly. *(See figure 7-3.)* In order to remove any one of the turret-halves, remove the four screws that hold the bearing-halves at each end of the shaft and loosen the set screws on the pinion gear enough to permit sliding without rotation. Lift off the bearing halves, slide the pinion gear toward the front panel and carefully lift the turret assembly out. The HF oscillator and 2nd RF turret is located closer to the front panel than the 1st RF and Antenna turret. In order to remove either of these sections, the band indicating dial, turret gear and turret shaft retaining collars on the front panel end of the turret shaft must be removed. This is done by loosening the two set screws on the turret gear and the four set screws on the two retaining collars.

Note

Set screw wrenches are located on the inside of the right panel.

The HF oscillator section is removed by loosening the set screws that hold it to the shaft and removing the five screws holding it to the unit shield plate. The turret half may now be removed from the shaft. The 2nd RF Section may now be removed by the same method. The antenna and 1st RF sections are removed from the other end of the shaft using the procedure outlined above.

CAUTION

Extreme care must be exercised in reassembling the parts of the turret assembly to insure proper relationship of the contacts, turret cans and band indicating dial.

Use the following procedure to replace the turret assembly. Assemble the H.F. oscillator can, shield plate and 2nd R.F. can loosely, using the ten screws previously removed. Make certain that the corresponding band designations on the faces of the cans are in line. Slide this assembly, R.F. can first, over the front end of the shaft. The 1st R.F. and Antenna cans and shield plate are assembled at the rear end of the shaft in a similar manner with the antenna can rearmost. Line up the set screws of each turret section with the turret locating flats on the shaft and tighten all set screws enough to permit sliding without rotation. Replace the two retaining collars and the turret gear on the front panel end of the shaft. Tighten the set screws in the turret gear hub on to the locating flats on the turret shaft. Lift the turret assembly and replace the shaft in its bearings taking care not to bend or damage the shorting and grounding spring arms mounted on the chassis. While doing this position the retaining collars on the shaft so that the collars are located one on each side of the turret shaft support located directly behind the front panel. The rear end of the shaft has a groove cut into it which matches the bearing in the rear turret shaft support. Secure the shaft with the two bearing halves and four screws. Each bearing half is paired to its mate, they have locating pins and holes and have a similar letter stamped on each half as an aid in correctly matching the two pieces. Rotate the BAND SWITCH to the detent position. Rotate the turret gear until the letter A appears in the BAND window on the front panel. Engage the pinion gear with the turret gear by sliding the pinion gear into position and tighten the pinion gear set screws on to the locating flats on the BAND shaft.

To align the turret sections slide one turret section into a position where the turret contacts marked A on the faces of the cans are touching the chassis contacts. Tighten the one visible set screw on each turret section. Rotate the turret by means of the BAND SWITCH knob until the two remaining set screws come into view and tighten them against the turret locating flat on the shaft. Bring the turret back to its original position and align the second turret section in a similar manner. Tighten the four set screws. Slide the two retaining collars up against the front turret shaft support and tighten the four set screws on the retaining collars. Check the rotation of the turret shaft to make certain that the collars are not binding against the support. The collars must be positioned so that the shaft will rotate freely with the collars bearing against the support slightly.

Whenever the turret gear or band scale dial is replaced care must be taken to orient the gear and dial properly. The A on the band scale dial must be over the corresponding A engraved on one spoke of the turret gear. The three securing screws are then tightened.

Access to components mounted on the under side of the chassis is made by removing the three covers on the bottom of each of the three chassis. Each of these covers is held by six fasteners. To release the fasteners rotate each one counterclockwise one half turn.

For access to components in the SELECTIVITY filter it is necessary to remove the side rail and side panel of the receiver.

(3) DISASSEMBLY AND REASSEMBLY OF THE DIAL LOCK ASSEMBLY.—Use the following procedure for cleaning, repair or replacement of the dial lock assembly. Turn the dial lock knob in a counterclockwise direction until the tuning knob is released. Remove the tuning knob by loosening the two set screws holding the tuning knob on the tuning shaft. Remove the thrust washer which is located on the tuning shaft between the tuning knob and the spring assembly. Unscrew the four filister head screws on the outside flange of the dial lock knob and remove the dial lock knob. Carefully remove the snap ring washer which retains the tuning shaft. Unscrew the four flat head screws on the face of the spring assembly and remove the entire spring assembly. Unscrew the female lock plate from the male lock plate mounted on the front panel. Unscrew the two screws

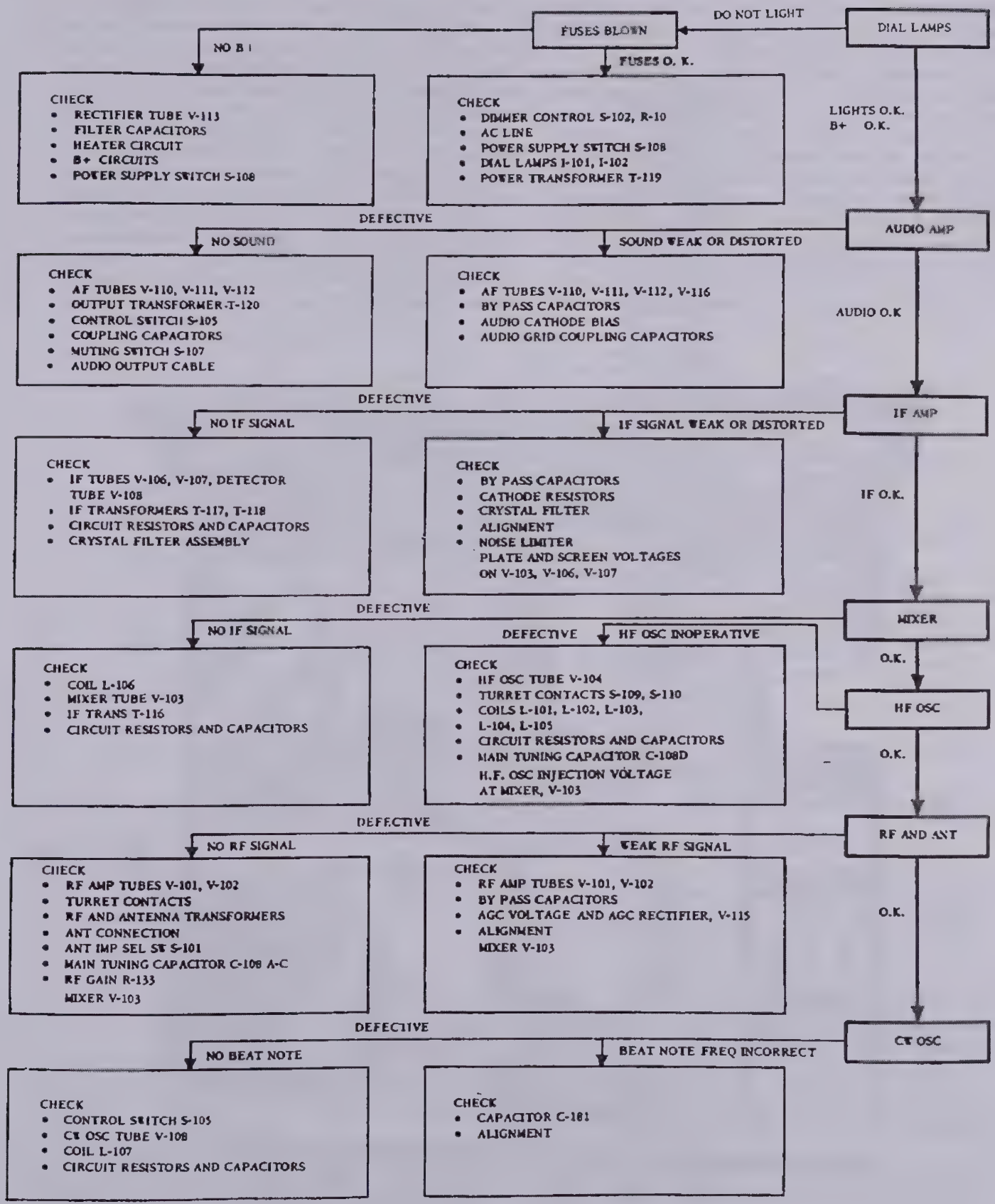


Figure 7—2. Radio Receiver R-366/TRR-5, Trouble Shooting Chart.

holding the male lock plate to the front panel and remove the male lock plate and tuning shaft. Slide the tuning shaft out of the male lock plate.

To reassemble the dial lock assembly the reverse procedure is followed. Insert the tuning shaft into the male lock plate from the rear. Insert the cup end of the tuning shaft into the DIAL LOCK hole making certain that the dog pin on the vernier dial fits into the slot in the cup. Slide the male lock plate against the front panel and secure it to the front panel using the two screws and lock washers previously removed. Before tightening the screws make certain that the tuning shaft rotates freely. With the square side of the hub toward the front panel, screw the female lock plate on to the male lock plate until the male threaded section extends through the female lock plate. Secure the spring assembly to the threaded portion of the male lock plate using the four flat head screws. Replace the snap ring washer making certain that the washer fits into the groove on the tuning shaft. Fasten the dial lock knob loosely to the spring assembly by partially screwing down the four filister head screws on the outside flange of the dial lock knob. Replace the tuning knob on the tuning shaft so that it rests lightly against the thrust washer and tighten the two set screws which fasten the tuning knob to the tuning shaft. Check to see that the tuning knob rotates freely. Rotate the dial lock knob in a clockwise direction until the springs of the spring assembly are pressed up against the tuning knob centering the dial lock knob on the spring assembly. Tighten the four filister head screws.

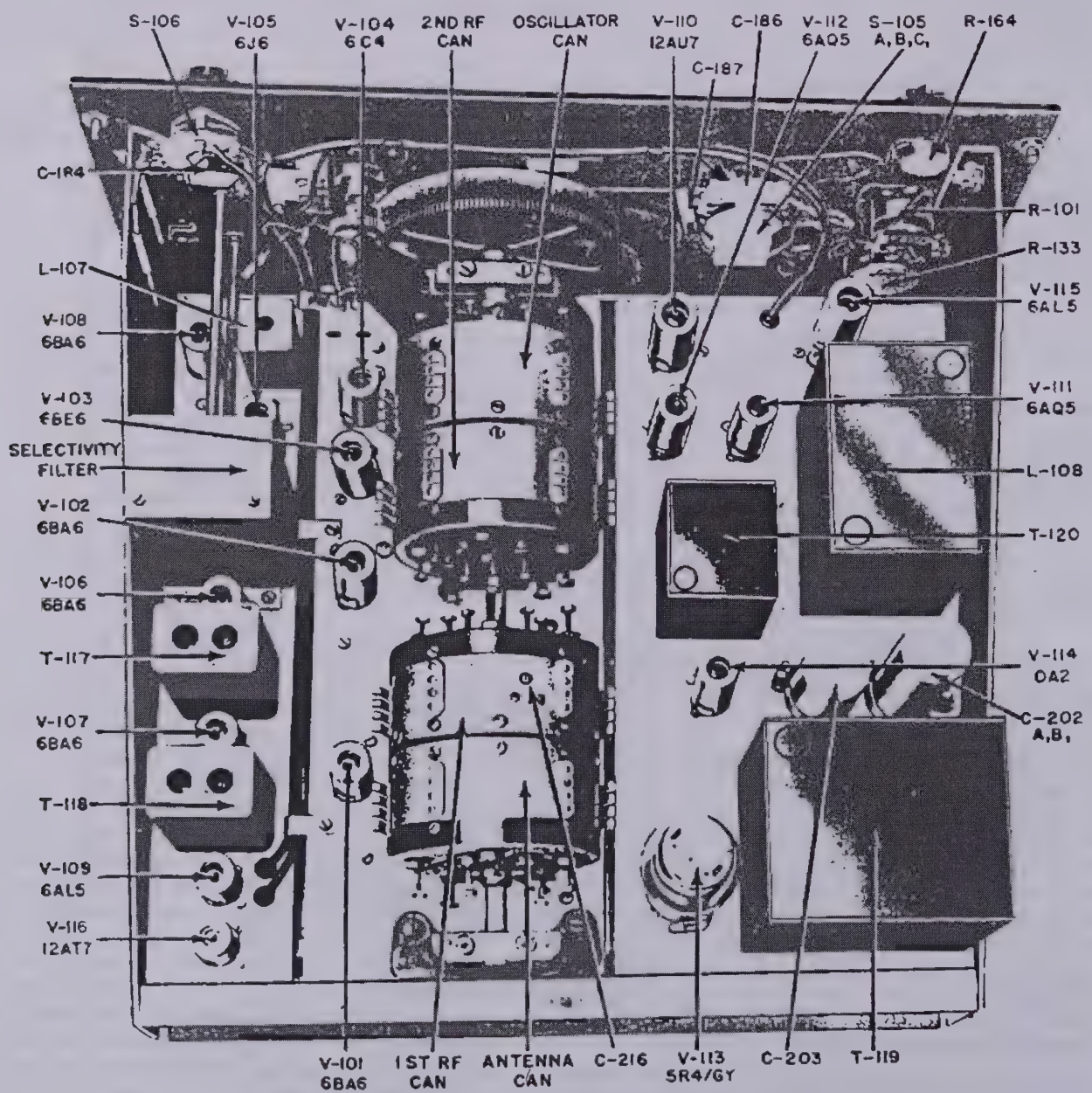


Figure 7—3. Radio Receiver R-366/TRR-5, Chassis Top View.

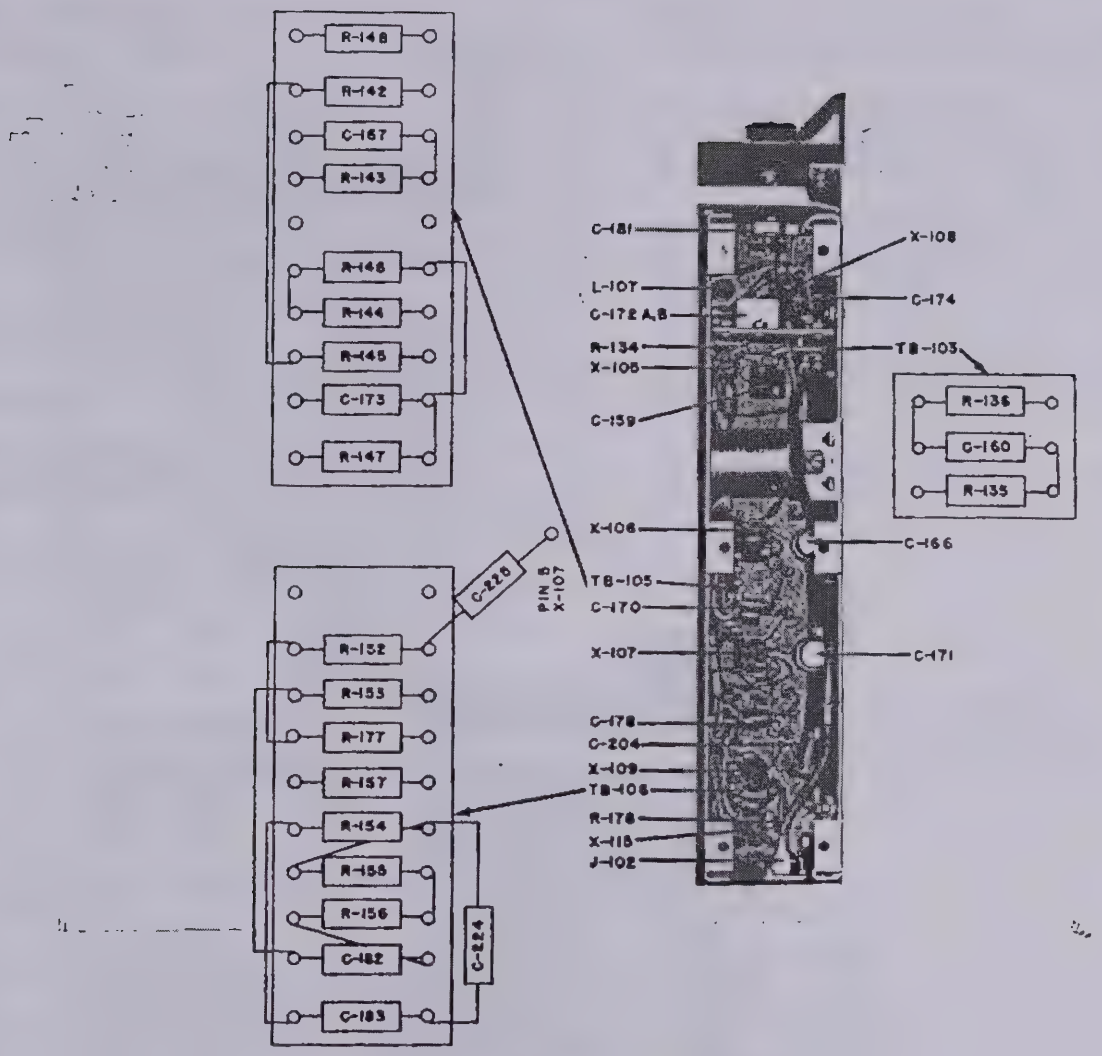


Figure 7—4. IF Chassis, Bottom View.

c. TROUBLE SHOOTING.

(1) EQUIPMENT REQUIRED FOR TROUBLE SHOOTING.

(a) Radio Receiving Equipment AN/TRR-5
Radio Receiver R-366/TRR-5.
Speaker LS-171/U.
Power Cable.
Speaker Cable.

(b) Test and Miscellaneous Equipment.
1 Headphone, 600-ohm impedance.
Multimeter (Volt-ohm-millameter) or vacuum tube voltmeter.
Standard Dummy Antenna.
Signal generator with output cable having clip leads.
.05 uf capacitor.
(The multimeter and signal generator are to be used in conjunction with resistance and voltage charts, figures 7-13 through 7-16 and trouble shooting chart, figure 7-2 as an aid in isolating trouble in the receiver.)

(2) LOCATING SOURCE OF TROUBLE.

(a) GENERAL.—In locating the source of trouble in radio receiver R-366/TRR-5 full use should be made of the resistance and voltage charts (figures 7-13 through 7-16) and trouble shooting chart (figure 7-2).

(b) QUICK CHECKS.

1. Connect the antenna to the ANTENNA INPUT J-101, turn the DIMMER knob maximum clockwise and turn the POWER SUPPLY knob to B+ OFF. Wait one minute for the receiver to warm up and turn the POWER SUPPLY knob to B+ ON.

2. If the dial window is not illuminated check fuses F-101 and F-102, power cable W-102 and the dial lamps I-101 and I-102.

3. Advance the A.F. GAIN control R-158 and the R.F. GAIN control R-133 to the maximum clockwise position.

4. Rotate the BAND SWITCH to determine if the trouble is in a particular band or in the turret contacts S-109 and S-110.

5. Tune through an entire band with the main tuning knob and listen for noise which would indicate touching condenser plates or dirty wipers on the main tuning condenser C-108.

6. Turn CONTROL SWITCH S-105 to the C.W.O. position and listen for the hiss of the C.W. oscillator to determine if the detector and audio stages are functioning.

7. Check the speaker voice coil and speaker cable for continuity and the speaker cable connector for damaged contacts and poor solder connections to the cable.

8. Remove the chassis from the cabinet and remove the turret cover as directed in paragraphs 7-3 and 7-4*b*(2).

9. Check to see that the bearing halves of the front and rear turret shaft support brackets are screwed down tightly.

10. Turn the receiver chassis over on its left side and check the bias at pin 6 of the H.F. oscillator tube V-104. Use a 20,000 ohm resistor in series with the probe of a 20,000 ohm-per-volt meter or vacuum tube voltmeter. The negative voltage should be −1 to −10 volts. Do not use a 1,000 ohm-per-volt meter for this check.

11. Remove the audio amplifier tubes V-111 and V-112 one at a time to determine if one half of the push-pull amplifier stage is defective.

12. Check the B+ voltage at pin 5 of the voltage regulator V-114.

13. Check the plate and screen voltages of all tubes using the tube voltage and resistance diagram, figure 7-16.

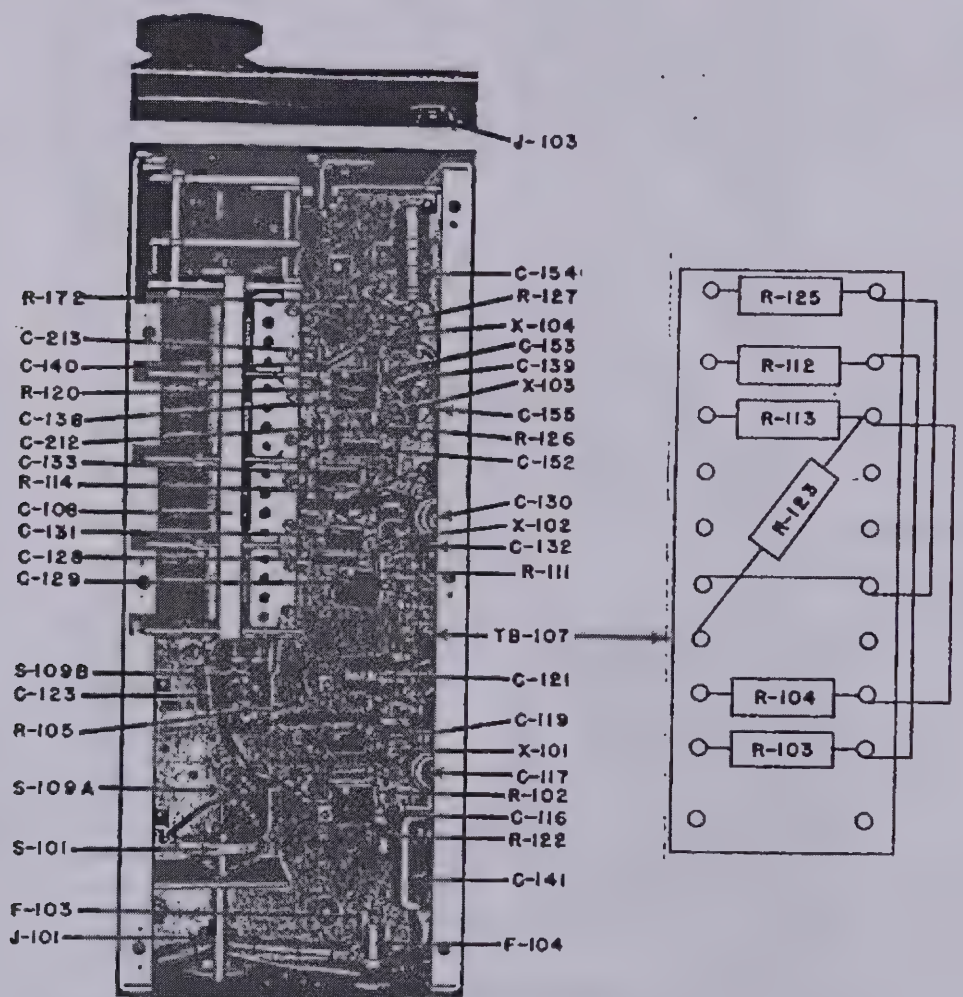


Figure 7—5. RF Chassis, Bottom View.

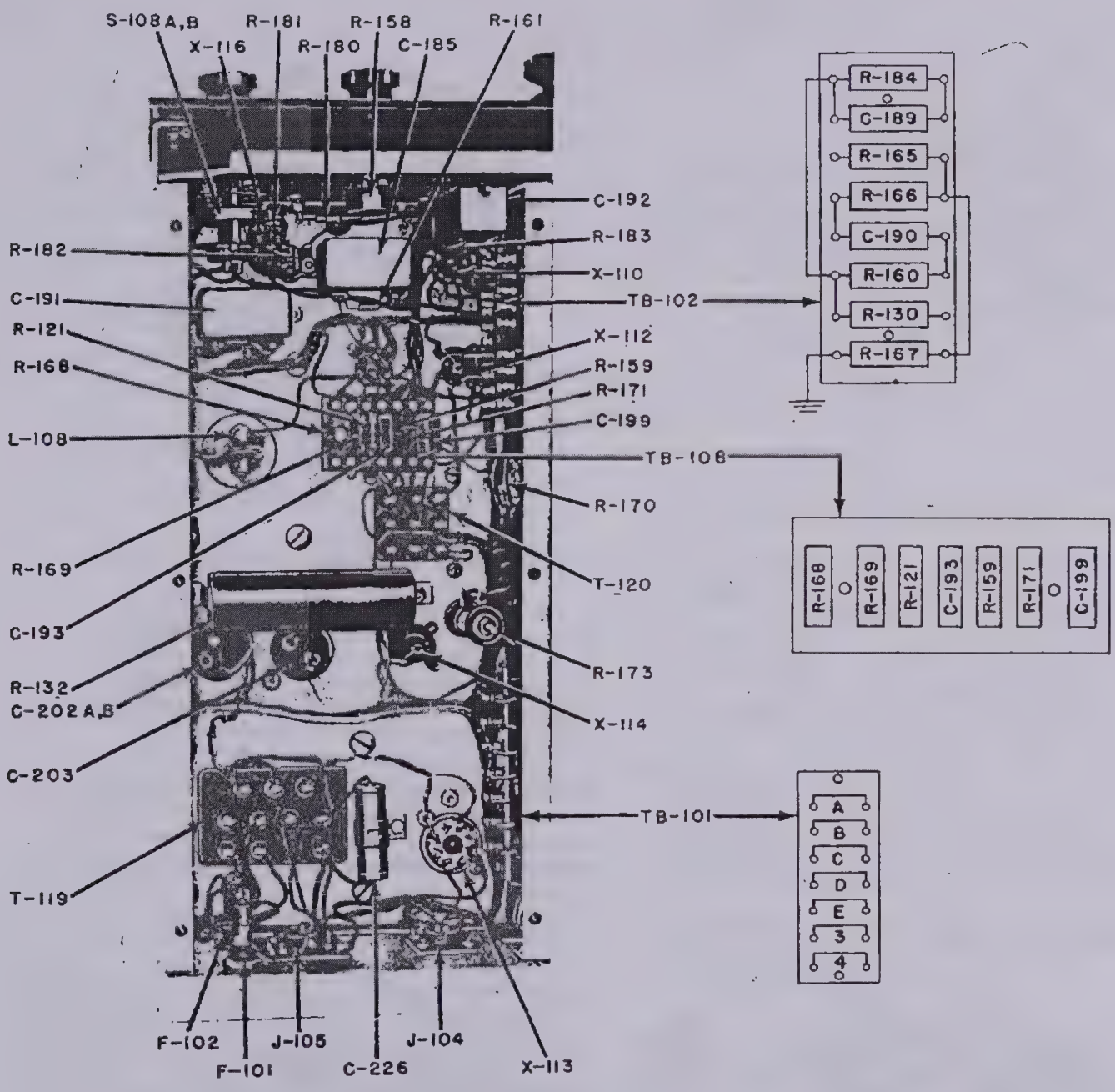


Figure 7—6. Audio and Power Chassis, Bottom View.

5. SENSITIVITY TESTS.

a. EQUIPMENT REQUIRED FOR SENSITIVITY TESTS:

Radio Receiver R-366/TRR-5.
Power Cable W-102.
Audio Output Connector J-303 with leads.
Antenna Connector J-301 with leads.
Signal Generator capable of producing RF signals from 455 kc to 30 mc with 1000 cycle modulation at 30%. Signal Generator Navy Model LP series
Audio Output meter calibrated in milliwatts with load impedance of either 6-ohms or 600-ohms. Audio Level Meter, ME-2/U
Standard dummy antenna.

b. CHECKING MCW SENSITIVITY.

(1) SETTING OF OPERATING CONTROLS.

ANTENNA IMPEDANCE (S-101)	HIGH
TONE (R-164)	BROAD
R.F. GAIN (R-133)	Max. clockwise

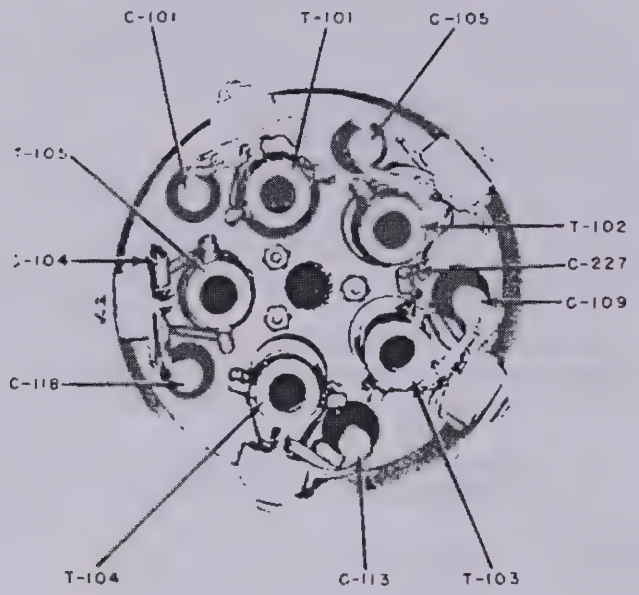


Figure 7—7. Antenna Turret Section.

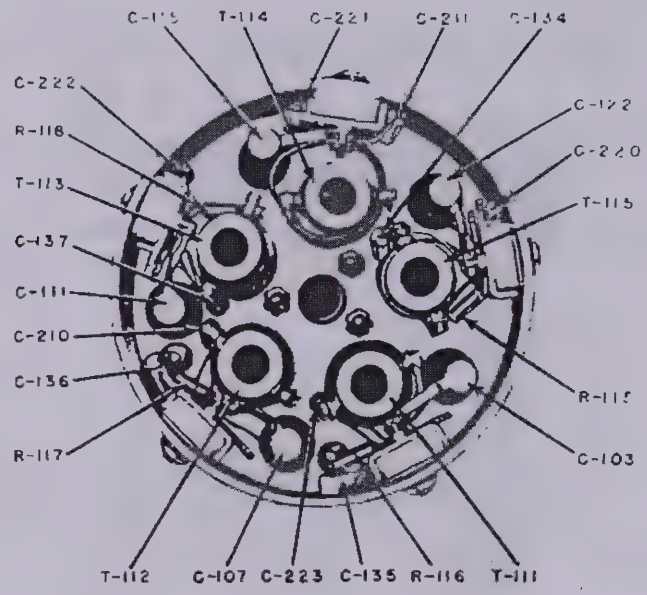


Figure 7—9. Second RF Turret Section.

POWER SUPPLY (S-108)	B+ ON
A.F. GAIN (R-158)	Max. clockwise
CONTROL SWITCH (S-105)	M.G.C.
Tuning (C-108)	Desired freq.
BAND (S-109, S-110)	Desired band
LIMITER (S-106)	OFF
SELECTIVITY (S-104)	BROAD
PHASING (C-163)	0
C.W. OSC. (C-181)	0

(2) SIGNAL GENERATOR.—Set the signal generator frequency to that desired for the check. Use a signal modulated with 1000 cycles at 30% modulation. Connect the signal generator to the antenna connector J-101 thru the standard dummy antenna and connector J-301.

(3) AUDIO OUTPUT METER.—Connect the output meter either to the 6-ohm terminals (B and C) of the AUDIO OUTPUT connector J-104 or to the 600-ohm terminals (A and D) using the corresponding impedance setting on the output meter. Use a meter range capable of reading 6 milliwatts, the standard output.

(4) SENSITIVITY CHECK PROCEDURE.—Feed the desired frequency from the signal generator into the receiver. Tune signal in carefully with the main tuning dial. Adjust the output to 6 milliwatts by means of the signal generator attenuator. Set the modulation control

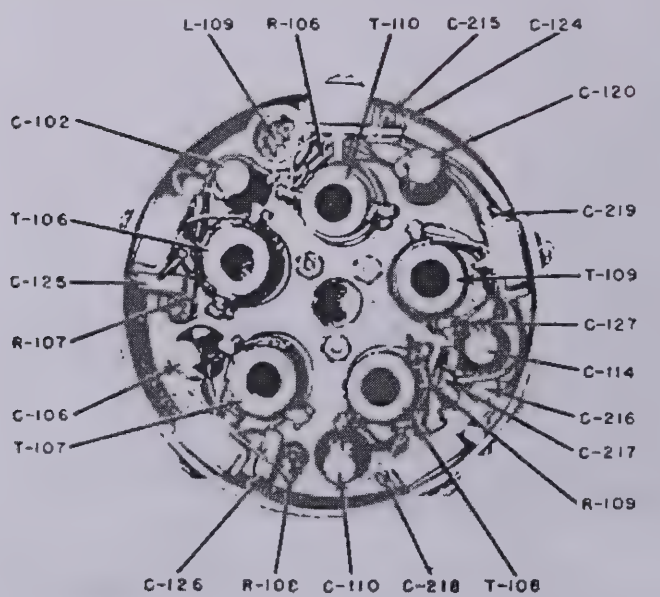


Figure 7—8. First RF Turret Section.

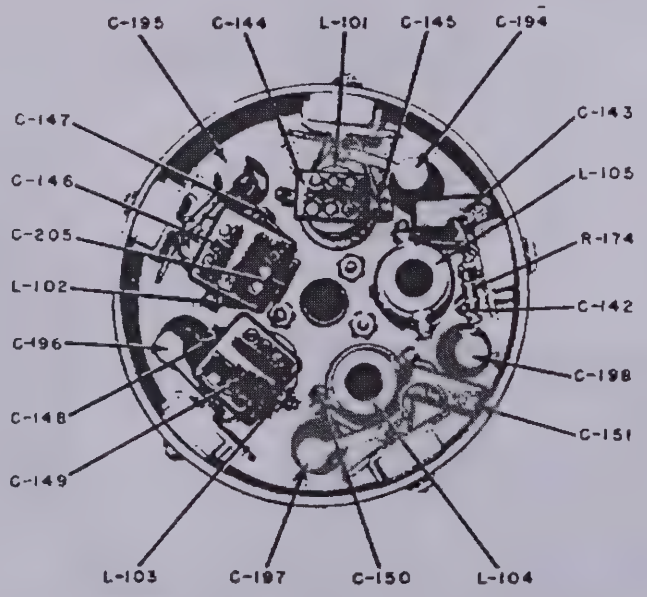


Figure 7—10. HF Oscillator Turret Section.

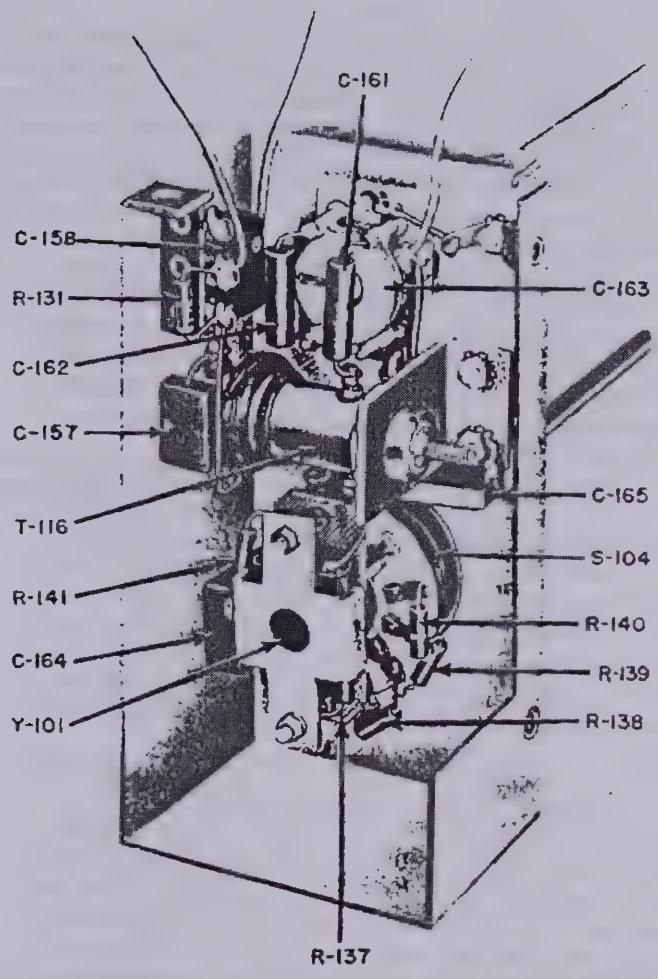


Figure 7—11. Selectivity Filter with Cover Removed.

on the signal generator to OFF and note the reduction in level on the output meter. If less than 10 db reduction is noted reduce the R.F. GAIN control slightly and reduce the signal generator output voltage with modulation on to again produce 6 milliwatt output. Turn the modulation off and note the change in output level. Repeat the above procedure until a 10 db drop in output level is obtained for modulated vs unmodulated input. The output voltage setting of the signal generator is then the sensitivity of the receiver for MCW operation and should be 15 microvolts or less.

c. CHECKING CW SENSITIVITY.

(1) SET UP OF OPERATING CONTROLS:

ANTENNA IMPEDANCE (S-101)	HIGH
TONE (R-164)	Any
R.F. GAIN (R-133)	Max. clockwise
POWER SUPPLY (S-108)	B+ ON
A.F. GAIN (R-158)	Max. clockwise
CONTROL SWITCH (S-105)	C.W.O.
Tuning (C-108)	Desired freq.
BAND (S-109, S-110)	Desired band
LIMITER (S-106)	OFF
SELECTIVITY (S-104)	4
PHASING (C-163)	0
C.W. OSC. (C-181)	+1 (To produce approximately 1000 CPS beat note.)

(2) SIGNAL GENERATOR.—Set the signal generator frequency to that desired for the check. Use an unmodulated signal. Connect the signal generator to the ANTENNA INPUT connector J-101 through the standard dummy antenna and connector J-301.

(3) AUDIO OUTPUT METER.—Connect the output meter as in paragraph 5*b*(3) above.

(4) SENSITIVITY CHECK PROCEDURE.—Feed the desired signal from the signal generator into the receiver. Peak the tuning by means of the main tuning dial on the receiver. Adjust the output to 6 milliwatts by means of the signal generator attenuator. Turn the signal generator off and note the reduction in level on the output meter. If less than 20 db reduction in level is noted reduce the R.F. GAIN control slightly, turn the signal generator on and reduce the signal generator output voltage to again produce 6 milliwatts output. Turn the signal generator off and note the change in output level. Repeat the above procedure until a 20 db drop in output level is obtained for signal vs no signal input. The output voltage setting of the signal generator is then the sensitivity of the receiver for CW operation and should be 10 microvolts or less.

6. ALIGNMENT PROCEDURES.

(See figures 7-3 and 7-12.)

Note

Allow a warm up period of one-half hour before attempting alignment.

a. EQUIPMENT REQUIRED FOR ALIGNMENT OF RADIO RECEIVING EQUIPMENT AN/TRR-5: Radio Receiver R-366/TRR-5.

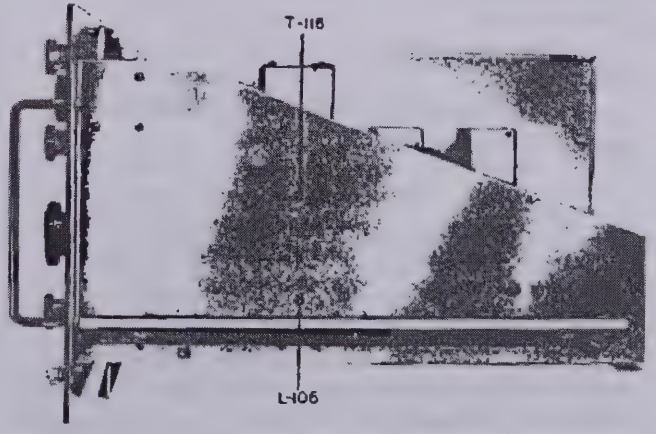


Figure 7—12. Radio Receiver R-366/TRR-5, Right Side View.

Power cable W-102.
AUDIO OUTPUT connector J-303 with leads.
Coaxial antenna connector J-301 with leads.
Signal Generator capable of producing RF signals from 455 kc to 30 mc with 1000 cycle modulation at 30%. Signal Generator Navy Model LP.
Output meter calibrated in milliwatts with load impedance of either 6-ohms or 600-ohms. Audio Level Meter ME-2/U.
Standard dummy antenna.
Capacitor. 01 uf.
1 pr. headphones 600-ohm impedance.

b. PRELIMINARY IF ALIGNMENT.

(1) SETTING UP OF OPERATING CONTROLS:

ANTENNA IMPEDANCE (S-101)	HIGH
TONE (R-164)	BROAD
R.F. GAIN (R-133)	Max. clockwise
POWER SUPPLY (S-108)	B+ ON
A.F. GAIN (R-158)	Max. clockwise
CONTROL SWITCH (S-105)	M.G.C.
Tuning (C-108)	1.3 mc
BAND (S-109, S-110)	E
LIMITER (S-106)	OFF
SELECTIVITY (S-104)	BROAD
PHASING (C-163)	0
C.W. OSC. (C-181)	0

(2) SIGNAL GENERATOR.–Set the frequency of the signal generator to 455 kc. Modulate 30% with 1000 cycles.

(3) AUDIO OUTPUT METER.–Connect the output meter either to the 6 ohm terminals, B and C, of the AUDIO OUTPUT connector J-104 or to the 600 ohm terminals, A and D, using the corresponding impedance setting on the output meter. Use a meter capable of reading 6 milliwatts, the standard output. The speaker is not connected in the alignment procedure.

(4) HEADPHONES.–Plug the headphones into the PHONES jack J-103 on the front panel of the receiver.

Note

Use headphones during alignment to monitor receiver performance.

CAUTION

This receiver is capable of producing over 5 watts audio output and will damage the output meter if care is not exercised. As a precaution set the output meter to its maximum output level range. Then adjust the range switch of the meter until the lowest output level range giving an on-scale indication is reached.

(5) H.F. OSCILLATOR.–Disable the H.F. oscillator V-104 by connecting the cathode, pin 7, to ground.

Note

To tune all inductances, withdraw slugs completely (counterclockwise rotation of the screw). Always align to the first peak indication obtained on clockwise rotation of the screw.

(6) ALIGNMENT OF IF TRANSFORMER T-118.–Connect the output cable of the signal generator to the control grid of V-107 (pin 1) through a .01 uf capacitor. Connect the ground lead to a chassis ground as close to V-107 as possible. Adjust the signal generaoutput until standard output, 6 mw, is indicated on the output meter. Tune the primary of T-118 and then the secondary. During alignment maintain standard receiver output, 6 mw, by adjusting the signal generator output voltage accordingly.

(7) ALIGNMENT OF IF TRANSFORMER T-117.–Connect the signal generator output cable to the control grid of V-106, pin 1, through a .01 uf capacitor. Connect the ground lead to a chassis ground as close to V-106 as possible. Adjust the signal generator output until standard output, 6 mw, from the receiver is indicated on the output meter. Tune the primary of T-117 and then the secondary maintaining standard receiver output by adjusting the signal generator output accordingly.

(8) ALIGNMENT OF IF TRANSFORMER T-116.–Connect the signal generator output cable to the grid of V-103 (pin 7 of V-103 or stator of tuning capacitor C-108C) through a .01 uf capacitor. Connect the ground lead to a chassis ground as close to V-103 as possible. Adjust the signal generator until standard output, 6 mw, from the receiver is indicated on the output meter. Tune the primary of T-116 and then the secondary maintaining standard receiver output by adjusting the signal generator output accordingly.

c. CW OSC ALIGNMENT.

(1) SETTING UP OF OPERATING CONTROLS:

ANTENNA IMPEDANCE (S-101)	HIGH
TONE (R-164)	BROAD
R.F. GAIN (R-133)	Max. clockwise
POWER SUPPLY (S-108)	B+ ON
A.F. GAIN (R-158)	Max. clockwise
CONTROL SWITCH (S-105)	C.W.O.
Tuning (C-108)	1.3 mc
BAND (S-109, S-110)	E
LIMITER (S-106)	OFF
SELECTIVITY (S-104)	BROAD
PHASING (C-163)	0
C.W. OSC. (C-181)	0

(2) SIGNAL GENERATOR.–Set the frequency of the signal generator to 455 kc. Use an unmodulated signal.

(3) AUDIO OUTPUT METER.–Retain previous connections.

(4) ALIGNMENT OF C.W. OSC. FREQUENCY.

–Tune inductance L-107 for zero-beat indication in headphones. Set SELECTIVITY switch (S-104) to SHARP position. Set C.W. OSC. control (C-181) to 2 clockwise. An audible beat will be heard in the headphones. Adjust the frequency of the signal generator carefully until a sharp rise in intensity is noted in the phones.

Note

This setting of the signal generator indicates the exact frequency of the crystal. Do not alter this setting until the entire IF alignment has been completed.

(5) Reset C.W. OSC. control (C-181) to position 0 and, if necessary, retune inductance L-107 until a zero-beat indication is again obtained in headphones.

d. IF ALIGNMENT (FINAL).

(1) SETTING UP OF CONTROLS:

ANTENNA IMPEDANCE (S-101)	HIGH
TONE (R-164)	BROAD
R.F. GAIN (R-133)	Max. clockwise
POWER SUPPLY (S-108)	B+ ON
A.F. GAIN (R-158)	Max. clockwise
CONTROL SWITCH (S-105)	M.G.C.
Tuning (C-108)	1.3 mc
BAND (S-109, S-110)	E
LIMITER (S-106)	OFF
SELECTIVITY (S-104)	BROAD
PHASING (C-163)	0
C.W. OSC. (C-181)	0

(2) SIGNAL GENERATOR. – Retain the exact setting obtained by following foregoing procedure.

(3) AUDIO OUTPUT METER.–Retain previous connections.

(4) VACUUM TUBE VOLTMETER OR 20,000 OHMS-PER-VOLT METER.–Connect the voltmeter to the common terminals of resistors R-154 and R-155. The resistors are mounted on terminal board TB-106 which is illustrated in figure 7-14.

(5) ALIGNMENT OF IF TRANSFORMER T-118.–Fully withdraw both cores of transformer T-118. Connect the signal generator output cable to the control grid of V-107, pin 1, through a .01 uf capacitor and repeat the procedure of paragraph *6b* (*6*) above. However, instead of using the output meter reading to determine standard receiver output, use the rectified carrier voltage which is measured by the voltmeter connected at the junction of detector resistors R-154 and R-155. Therefore, while tuning first the primary and then the secondary of transformer T-118, maintain standard receiver output by adjusting the signal generator output so that the voltmeter reads –1.5 volts d-c. Do not retune, this is the final adjustment of T-118.

(6) ALIGNMENT OF IF TRANSFORMER T-117.–Connect the signal generator output cable to the control grid of V-106, pin 1, through a .01 uf capacitor and repeat the procedure of paragraph *6d*(5) above.

(7) ALIGNMENT OF IF TRANSFORMER T-116.–Connect the signal generator output cable to the control grid of V-103 (pin 7 of V-103 or stator of C-108C) through a .01 uf capacitor. Fully withdraw the core of transformer T-116 and peak. Maintain standard receiver output by adjusting the signal generator output so that the voltmeter reads –1.5 volts d-c. Turn the adjustment screw one half turn counterclockwise for bandwidth correction.

(8) ALIGNMENT OF INDUCTANCE L-106.–Maintain the connection of the signal generator (paragraph *6d* (7)) and adjust the signal generator output to give –1.5 volts d-c reading on the voltmeter. Set the SELECTIVITY switch to position 2 and note the change in detector output voltage. Adjust L-106 until the detector output voltage is the same for the BROAD and 2 settings of the SELECTIVITY switch.

(9) SELECTIVITY FILTER CHECK.–Rotate the SELECTIVITY SWITCH to all positions from BROAD to SHARP. The detector voltage will gradually decline as the switch is rotated from 2 to SHARP. The nominal bandwidth at the 6 db point for each SELECTIVITY switch setting is as follows:

BROAD.....8 kc	4....1.6 kc ± 25%
2.....4.4 kc ± 25%	5....1.04kc ± 20%
3.....2.4 kc ± 30%	SHARP .41kc ± 20%

Check the operation of the phasing control by rotating it in either direction off zero and noting the change in detector output voltage. The phasing control determines the rejection frequency slot of the crystal filter circuit. The rejection slot is approximately 50 db.

(10) Disconnect the vacuum tube voltmeter. Remove the grounding jumper on the cathode of the H.F. oscillator, V-104. Replace the IF chassis bottom cover and lock it in place.

e. RF ALIGNMENT.

(1) SETTING UP OF CONTROLS:

ANTENNA IMPEDANCE (S-101)	HIGH
TONE (R-164)	BROAD
R.F. GAIN (R-133)	Max. clockwise
POWER SUPPLY (S-108)	B+ ON
A.F. GAIN (R-158)	Max. clockwise
CONTROL SWITCH (S-105)	M.G.C.
Tuning (C-108)	Noted
BAND (S-109, S-110)	Noted
LIMITER (S-106)	OFF
SELECTIVITY (S-104)	BROAD
PHASING (C-163)	0
C.W. OSC.	0

(2) SIGNAL GENERATOR.–Use the exact frequencies indicated in the RF ALIGNMENT TABLES (Tables 7-2, 7-3). Use a modulated signal, 1000 cycles at 30% modulation. Connect the output cable of the signal generator to the ANTENNA INPUT (J-101) using the coaxial antenna connector (J-301) and a standard dummy antenna.

(3) AUDIO OUTPUT METER.–Retain previous connections.

(4) MECHANICAL ALIGNMENT. – The mechanical alignment of the main tuning condenser, main tuning dials and vernier dial should be carefully checked before alignment. Remove the RF turret cover. This cover must be left off to provide access to the alignment trimmers. Remove the bottom cover and inspect the main tuning condenser. Rotate the main tuning knob in a clockwise direction until a stop is reached.

Note

The dial drive mechanism contains an automatic stop which protects the rotor of the main tuning condenser. This stop prevents the rotor from being driven against the frame of condenser at the minimum and maximum capacity positions.

The fiducial line on the dial window should be directly in line with 100, ± the width of the index line, on the inner scale of the main dial. The main and vernier dials may be adjusted, if necessary, by loosening the set screws on the hubs of the dials. In the case of the vernier dial, however, the dial lock knob must be removed (see paragraph 4*b*(3)) to gain access to the set screws.

(5) USE OF THE ALIGNMENT TOOL, H-183.–The alignment tool is located on the inside of the right side panel of the receiver chassis and panel assembly. The tool is held in place by means of a wing nut. It is used to align the antenna, RF and H.F. oscillator stages. The transformers for all these are located in the turret cans. To use the tool remove the wing nut holding the tool in place. Grasp the tool by the handle and place the hexagonal hole of the knurled wheel over the nut of the adjustment screw to be tuned. The tool is made so that the nut will fit into only one side of the hole and cannot pass through it. Rotate the knurled wheel of the alignment tool with the index finger of the other hand to make the required alignment adjustment.

(6) H.F. OSCILLATOR ALIGNMENT PROCEDURE.–Replace the bottom cover on the RF chassis. Place the receiver in its normal operating position. Use an RF signal from the signal generator of sufficient intensity to maintain the standard output indication of 6 milliwatts on the output meter. If the noise level at any alignment point is higher than the standard output reduce the A.F. GAIN control to produce standard receiver output with the smallest signal generator output. Make the initial adjustment with the capacitor if the calibration error is greater at the high frequency end. Make the initial adjustment with the inductance if the calibration error is greater at the low frequency end. Continue to alternate between inductance and capacitor adjustments (shown in table below) until the calibration is correct for all the check points given in the table. Calibration adjustments should be made in the order in which they are shown in table 7-1.

Note

In order to prevent alignment on a spurious frequency, the image frequency must be located for each alignment point on bands A, B and C. This can be done by tuning the signal generator to a frequency 910 kc higher than the calibration frequency and identifying the signal received.

If the image frequency is 910 kc lower than the calibration frequency it will be necessary to retune the circuit so that the image frequency is 910 kc higher.

(7) ANTENNA AND RF AMPLIFIER ALIGNMENT PROCEDURE.–The second and first RF and antenna stages are aligned in that sequence at each adjustment point.

Note

After E band alignment is completed proceed to paragraph 8 for the IF trap alignment and test procedures. Then continue with the alignment of bands D, C, B andA.

The low frequency adjustment of all three stages should be made first and followed by the high frequency adjustment. The low and high frequency adjustments should be repeated in that order until no further peaking can be obtained. The image frequency must be checked to insure proper alignment. Tune the signal generator output to a frequency 910 kc above the calibration frequency. Increase the signal generator output to produce standard receiver output, 6 mw, and identify the signal. Note the image frequency rejection ratio in db and compare with the minimum ratios listed in table 7-1.

Note

Image rejection is defined as the ratio between the measured sensitivity of the receiver at the calibration frequency and the input voltage required to produce standard receiver output at a signal frequency equal to the sum of twice the intermediate frequency and the calibration frequency. The control settings of the receiver are not altered during the determination of the image rejection ratio.

TABLE 7-1. MINIMUM IMAGE FREQUENCY REJECTION RATIOS

BAND	FREQUENCY (mc)	MINIMUM IMAGE FREQUENCY REJECTION (db)
A	28	25
B	13	25
C	6	44
D	2.8	62
E	1.25	82

(8) ALIGNMENT OF THE IF TRAP.–Using the main tuning knob tune the receiver to 540 kc. Adjust the signal generator to produce a 30% modulated 455 kc output of sufficient strength to deliver standard receiver output, 6 mw.

Note

An RF signal as high as 1,000 microvolts may be required to give such an indication.

Using an insulated screw driver tune variable capacitor C-216 for minimum output meter indication while adjusting the signal generator output to maintain standard receiver output. The capacitor adjustment screw is accessible through a hole in the top of the first RF turret can when the BAND switch is set in position E.

To check on the performance of the IF trap perform the following operations.

(a) Measure MCW receiver sensitivity at 540 kc.

(b) Without disturbing the receiver control adjustments, feed a 455 kc signal into the receiver and adjust the signal generator output to produce standard receiver output.

(c) Determine the ratio between the receiver sensitivity at 540 kc and the strength of the 455 kc signal. A ratio of 1,000 to 1 (60 db) or more indicates proper IF trap operation.

Note

All tubes of a given type supplied with the equipment must be used before ordering additional tubes from general stock.

(9) CRYSTAL DATA.—

(a) Frequency range of crystal circuit, 455 kc.
(b) Filter frequency, 455 kc.
(c) Accuracy of crystal, ± .01%.
(d) Data on crystal holder.
1. Outer physical dimension, ½" x ⅜" x ⅜".
2. Solder lugs with wire leads.
3. Method of holding crystal, non adjustable air gap.

TABLE 7-2. H.F. OSCILLATOR ALIGNMENT TABLE

BAND	HIGH FREQUENCY ADJUSTMENT	MIDDLE FREQUENCY ADJUSTMENT	LOW FREQUENCY CHECK POINT
E	C-194 1.25 mc	L-101 0.90 mc	0.60 mc
D	C-195 2.8 mc	L-102 2.1 mc	1.4 mc
C	C-196 6.0 mc	L-103 4.5 mc	3.0 mc
B	C-197 13.0 mc	L-103 9.5 mc	6.5 mc
A	C-198 28.0 mc	L-105 21.0 mc	15.0 mc

TABLE 7-3. RF ALIGNMENT TABLE

BAND	ANTENNA		1ST RF		2ND RF	
	High Freq Adj	Low Freq Adj	High Freq Adj	Low Freq Adj	High Freq Adj	Low Freq Adj
E	C-101 1.25 mc	T-101 0.6 mc	C-102 1.25 mc	T-106 0.6 mc	C-103 1.25 mc	T-111 0.6 mc
D	C-105 2.8 mc	T-102 1.4 mc	C-106 2.8 mc	T-107 1.4 mc	C-107 2.8 mc	T-112 1.4 mc
C	C-109 6.0 mc	T-103 3.0 mc	C-110 6.0 mc	T-108 3.0 mc	C-111 6.0 mc	T-113 3.0 mc
B	C-113 13.0 mc	T-104 6.5 mc	C-114 13.0 mc	T-109 6.5 mc	C-115 13.0 mc	T-114 6.5 mc
A	C-118 28.0 mc	T-105 15.0 mc	C-120 28.0 mc	T-110 15.0 mc	C-122 28.0 mc	T-115 15.0 mc

TABLE 7-4. TUBE CHARACTERISTICS

TUBE TYPE	HEATER VOLTAGE (V)	HEATER CURRENT (A)	PLATE VOLTAGE (V)	GRID BIAS (V)	SCREEN VOLTAGE (V)	PLATE CURRENT (MA)	SCREEN CURRENT (MA)	AC PLATE RESISTANCE (Ohms)	VOLTAGE AMPLIFICATION FACTOR (MU)	TRANSCONDUCTANCE (Micromhos)		EMISSION	
										Normal	Minimum	Is (MA)	Test Volt
6BA6	6.3	.3	250	—20	100	11	4.2	1.5 meg	—	4400	3600	60	20
6BE6	6.3	.3	250	—1.5	100	3	7.1	—	—	400	280	50	15
6C4	6.3	.15	300	—50	—	25	—	—	17	2200	1750	70	30
6J6	6.3	.45	100	0	—	8.5	—	7100	38	5300	4000	40	10
6AL5	6.3	.3	150	—	—	9	—	—	—	—	—	40	10
6AQ5	6.3	.45	250	—12.5	250	45	4.5	5200	4.5	4100	3000	100	30
12AT7	6.3	.3	250	—2	—	10	—	30,000	55	5550	4500	50	10
12AU7	6.3	.15	250	—8.5	—	10.5	—	7700	17	2200	1750	70	30
5R4/GY	5.0	2.0											
OA2	gaseous voltage regulator, starting voltage 185 min, operating voltage 150 (Approx), Operating Current 5 (min) to 30 (max)												

Power Output

TABLE 7-5. ELECTRON TUBE OPERATING VOLTAGES

SYMBOL	TUBE TYPE	FUNCTION	PLATE VOLTS	SCREEN VOLTS	SUPP VOLTS	CATH VOLTS	GRID VOLTS	HTR VOLTS
V-101	6BA6	1st RF	210	100	0	1.0	0	6.3
V-102	6BA6	2nd RF	210	100	0	1.0	0	6.3
V-103	6BE6	Mixer	250	80	—	1.7	0	6.3
V-104	6C4	HF Oscillator	140	—	—	0	—1.0	6.3
V-105	6J6	Scanning Amplifier	280	—	—	5.6	0	6.3
V-106	6BA6	1st IF	265	265	2.8	2.8	0	6.3
V-107	6BA6	2nd IF	265	100	2.8	2.8	0	6.3
V-108	6BA6	CW OSC	95	75	0	0	—22	6.3
V-109	6AL5	Det and noise limiter	—	—	—	—	—	6.3
V-110	12AU7	2nd Audio	75	—	—	2.9	—	6.3
V-111	6AQ5	Audio Amp	255	270	15	15	0	6.3
V-112	6AQ5	Audio Amp	255	270	15	15	0	6.3
V-113	5R4/GY	Main rectifier	280 (pin 4) 280 (pin 6)	AC AC	—	—	—	5.0
V-114	OA2	Voltage regulator	160	—	—	—	—	—
V-115	6AL5	A.G.C. Rectifier	0	—	—	2.1	—	6.3
V-116	12AT7	1st Audio	67	—	—	.9	0	6.3

CONTROL SWITCH	C.W.O.	PHASING	O	DC volts measured to ground
R.F. GAIN	10	C.W. OSC.	O	AC volts measured across filaments
A.F. GAIN	10	BAND	E	
NOISE LIMITER	OFF	Tuning	Any	(1) valves for each triode
TONE	BROAD	NO SIGNAL INPUT		
SELECTIVITY	BROAD			

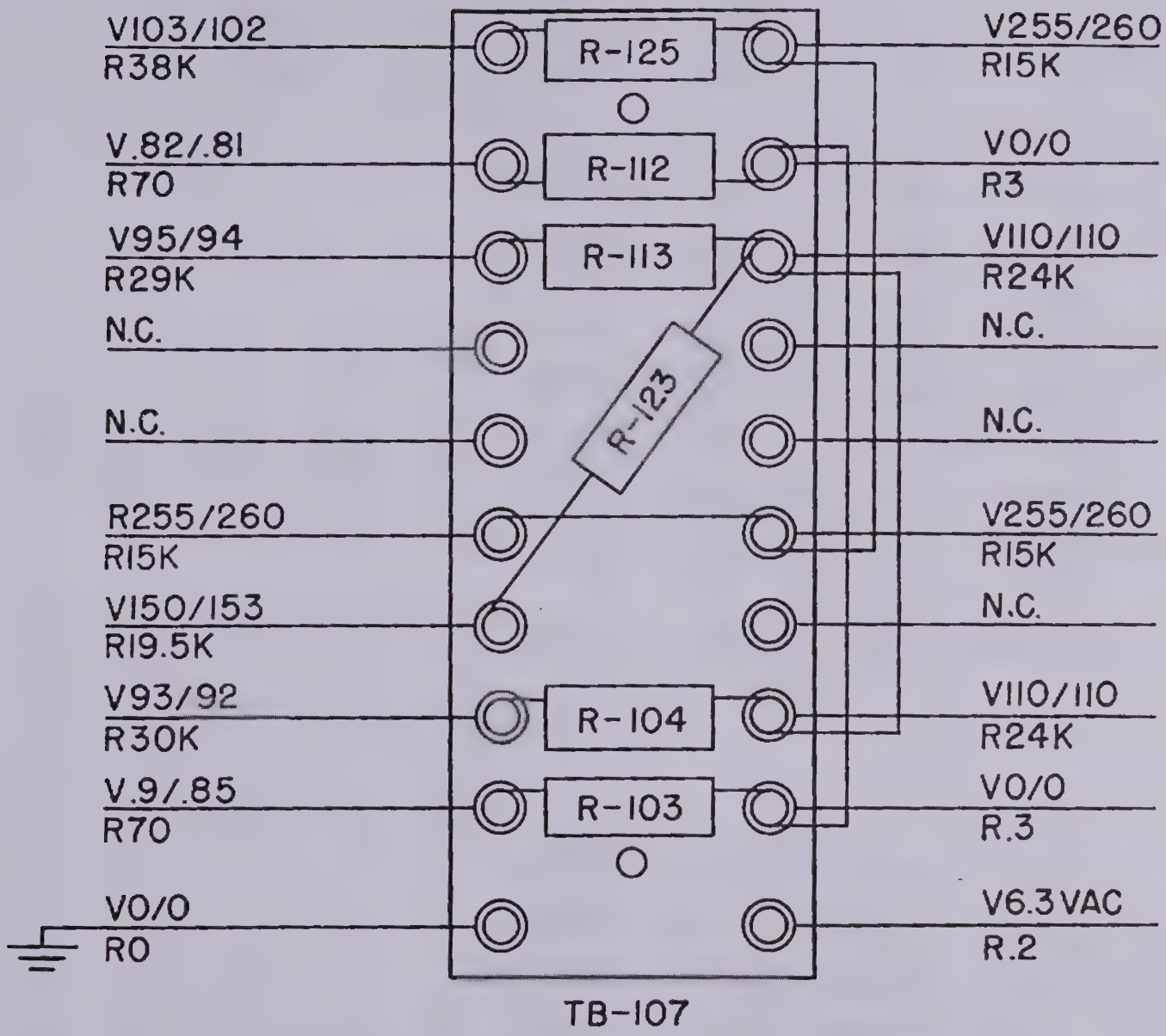


Figure 7—13. RF Chassis, Terminal Boards Voltage and Resistance Data

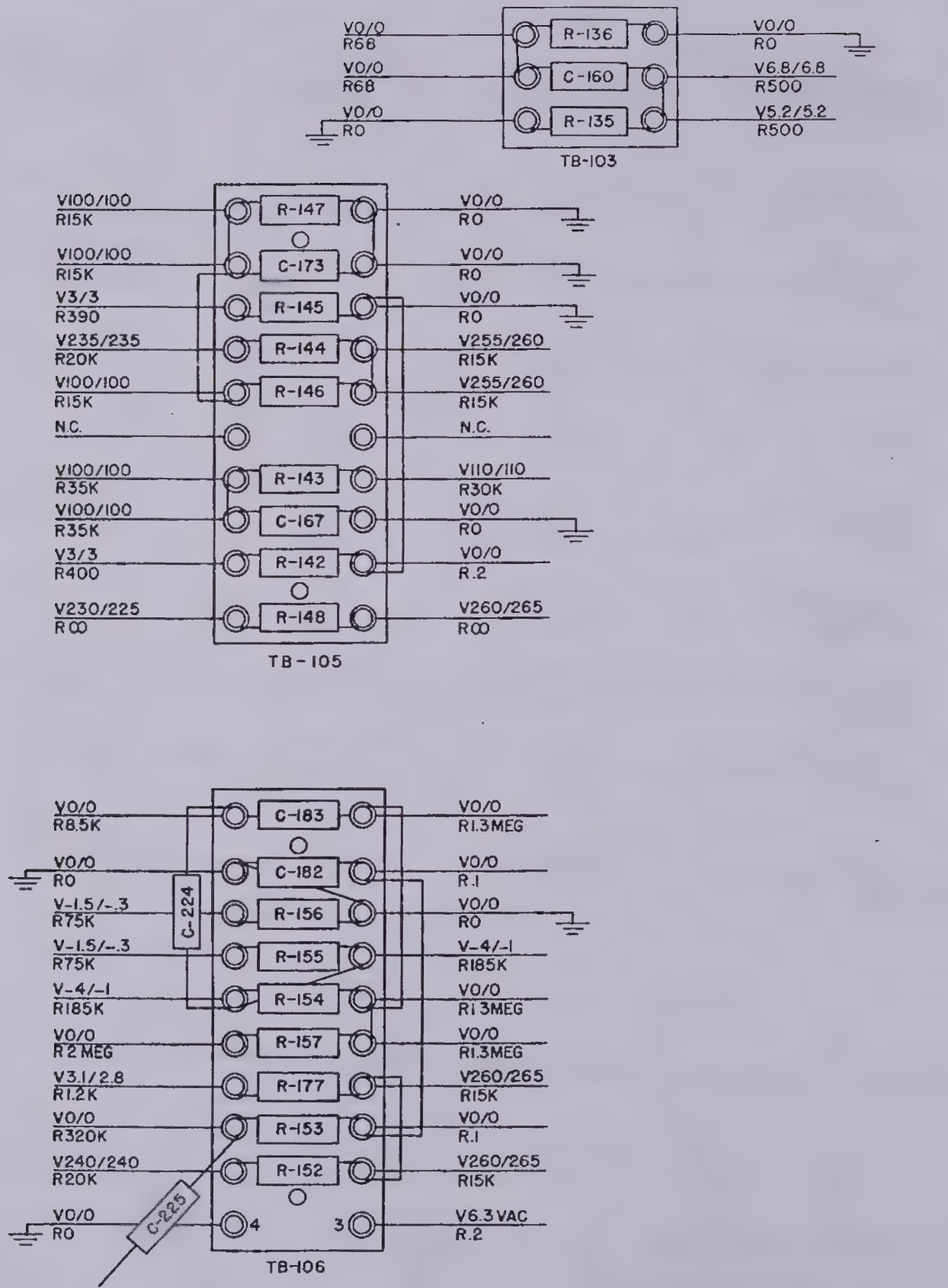


Figure 7—14. IF Chassis, Terminal Boards Voltage and Resistance Data.

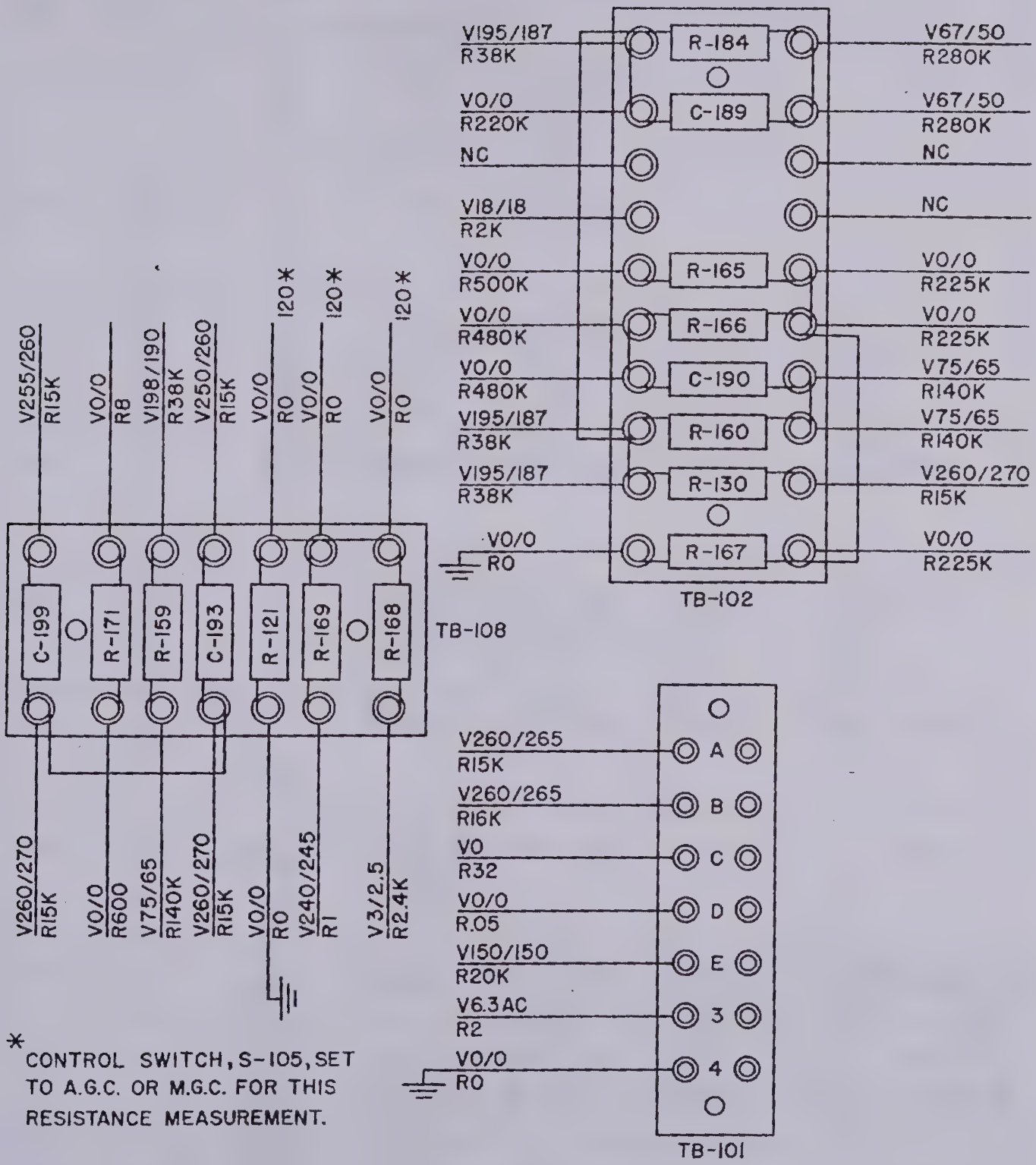


Figure 7—15. Audio and Power Chassis, Terminal Boards Voltage and Resistance Data.

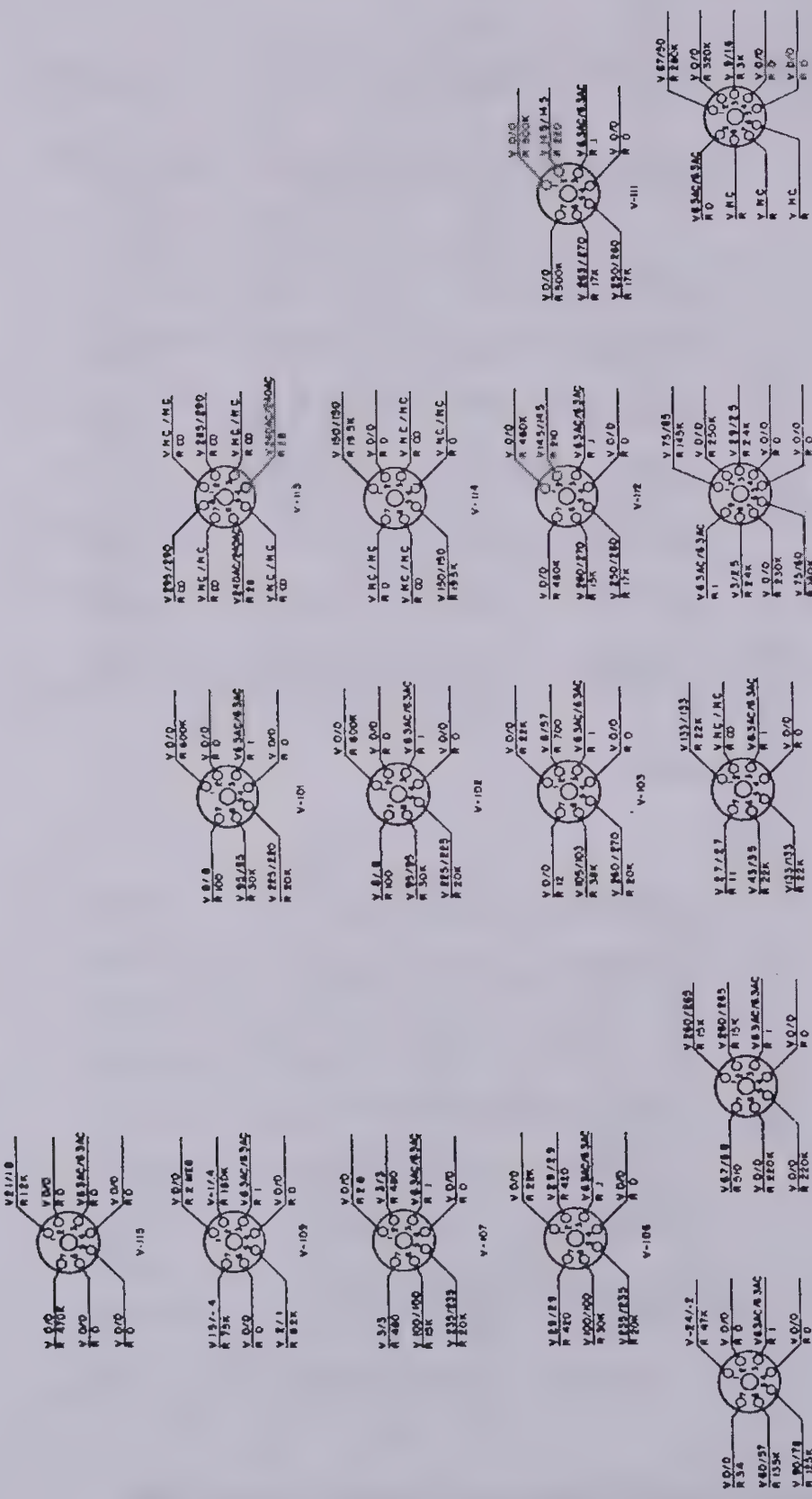


Figure 7—16. Radio Receiver R-366/TRR-5, Tube Socket Voltage and Resistance Data.

TABLE 7-6. WINDING DATA

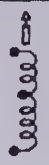
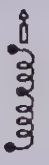
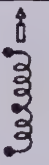
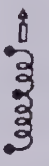
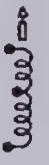
SYMBOL DESIG.	ESPEY PART NO.	DIAGRAM	WINDING	WIRE SIZE	TURNS	DC RESISTANCE IN OHMS	HIPOT AC VOLTS	REMARKS
L-101	2.528		Solenoid	No. 36 DF	106½ tap 15½	7.5		115.8 UHY
L-102	2.527		Solenoid	No. 32 SNE	48½ tap 12½	1.4		28.5 UHY
L-103	2.526		Solenoid	No. 28 SSE	23½ tap 3½	0.29		8.8 UHY
L-104	2.525		Solenoid	No. 27 DF	10½ tap 2½	0.13		2.08 UHY
L-105	2.524		Solenoid	No. 16 soft drawn copper, silver plate	4½ tap 1¾	0.004		0.33 UHY
L-106	16.292		Universal	No. 7/41 SNE	231½	9		0.97 MHY
L-107	2.529		3 PIE Universal	No. 36 SNE	126½ tap 42	9.3		265 UHY
L-108	16.251		Layer Solenoid	No. 28 E	3016	120	1200	10 HY @ 160 MA DC 10V 60 CYCLES AC
T-101	15.071		PRI Universal SEC 3 PIE Universal	No. 38 SNE No. 7/41 SNE	177½ tap 151 116	23.6 4.2		930 UHY 229 UHY
T-102	15.070		PRI Universal SEC 2 PIE Universal	No. 38 SNE No. 7/41 SNE	34½ tap 11½ 45	4.5 1.7		38.2 UHY 42 UHY

TABLE 7-6. WINDING DATA—Continued

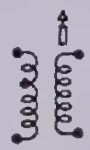
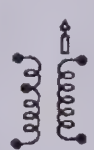
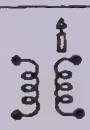
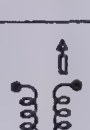
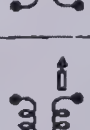
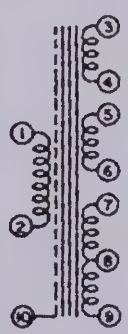
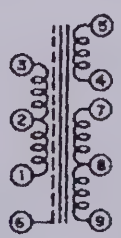
SYMBOL DESIG.	ESPEY PART NO.	DIAGRAM	WINDING	WIRE SIZE	TURNS	DC RESISTANCE IN OHMS	HIPOT AC VOLTS	REMARKS
T-103	15.069		PRI Solenoid SEC Solenoid	No. 36 SNE No. 28 SSE	10½ tap 6½ 27	0.35 0.33		1.01 UHY 10.5 UHY
T-104	15.068		PRI Solenoid SEC Solenoid	No. 36 SNE No. 27 DF	10½ tap 6½ 11	0.83 0.109		3.2 UHY 2.24 UHY
T-105	15.067		PRI Solenoid SEC Solenoid	No. 36 SCE No. 16 soft copper	4½ tap 1½ 4½	0.33 0.004		0.483 UHY 0.326 UHY
T-106	15.076		PRI Universal SEC 2 PIE Universal	No. 38 SNE No. 38 SNE	135 104	17.8 12.5		511 UHY 230 UHY
T-107	15.075		PRI Universal SEC 2 PIE Universal	No. 38 SNE No. 38 SNE	105 45	13.5 5.2		314 UHY 45.5 UHY
T-108	15.074		PRI Universal SEC Solenoid	No. 38 SNE No. 28 SSE	20 27	13.5 5.2		12.85 UHY 9.9 UHY
T-109	15.073		PRI Universal SEC Solenoid	No. 36 SNE No. 27 DF	50 11	3.65 0.1		77 UHY 2.15 UHY
T-110	15.072		PRI Universal Pie SEC Solenoid	No. 38 SNE No. 16 soft copper, silver plate	25 5	3.0 0.004		19.6 UHY 0.352 UHY
T-111	15.081		PRI Universal SEC 2 PIE Universal	No. 38 SNE No. 38 SNE	135 104	17.9 12.5		518 UHY 230 UHY
T-112	15.080		PRI Universal SEC 2 PIE Universal	No. 38 SNE No. 38 SNE	105 45	13.3 5.3		306 UHY 45.8 UHY
T-113	15.079		PRI Universal SEC Solenoid	No. 38 SNE No. 28 SSE	20 27	2.35 0.3		12.8 UHY 10.5 UHY

TABLE 7-6. WINDING DATA—Continued

SYMBOL DESIG.	ESPEY PART NO.	DIAGRAM	WINDING	WIRE SIZE	TURNS	DC RESISTANCE IN OHMS	HIPOT AC VOLTS	REMARKS
T-114	15.078		PRI Solenoid	No. 36 SNE	4	0.3		
			SEC Solenoid	No. 27 DF	11	0.1		2.1 UHY
T-115	15.077		PRI Universal Pie	No. 38 SNE	25	3.0		19.6 UHY
			SEC Solenoid	No. 16 soft copper, silver plate	5	0.004		0.37 UHY
T-116	16.291		PRI Universal	No. 15/44 SNE	170½	6.8		630 UHY
			SEC Universal	No. 7/41 SNE	37½	1.5		33.2 UHY
T-117	16.293		PRI Universal	No. 15/44 SSE	118	3		180 UHY @ 790 KC
			SEC Universal	No. 15/44 SSE	118	3		180 UHY @ 790 KC
T-118	16.294		PRI Universal	No. 15/44 SSE	118	3		180 UHY @ 790 KC
			SEC Universal	No. 15/44 SSE	118	3		180 UHY @ 790 KC
T-119	18.091		PRI	No. 21E	255	2.5	500	Electrostatic shield between windings of appropriate width, copper .002" thick Pri 115V 50-60 CPS
			SEC 1	No. 28 E	1290 tap 645	53	1150	Sec. 1 560V 160 ma CT.
			SEC 2	No. 17 E	15 2 strand	0.05	500	Sec. 2 6.3V 4.5 amp
			SEC 3	No. 21 E	12 2 strand	0.15	1150	Sec. 3 5V 2 amp.
T-120	15.053		PRI	No. 36 E	3060 tap 1530	610	1400	Electrostatic shield between windings of appropriate width, copper .002" thick
			SEC 1	No. 34 E	750 tap 375	70	500	Impedances Pri, 10,000 OHM at .030 A DC
			SEC 2	No. 24 E	75	1.5	50	Sec 1, 600 OHM CT Sec 2, 6 OHM

SECTION 8

PARTS LIST

TABLE 8-1. WEIGHTS AND MEASURES OF SPARE PARTS BOX

EQUIPMENT SPARES					
SPARE PARTS BOX	OVERALL DIMENSIONS			VOLUME	WEIGHT
	HEIGHT	WIDTH	DEPTH		
1	6¾"	3½"	15¼"	0.208 cu. ft.	2.2 lbs.

TABLE 8-2. SHIPPING WEIGHTS AND DIMENSIONS OF SPARE PARTS BOXES

EQUIPMENT SPARES						
SHIPPING BOX NUMBER	SPARE PARTS BOX	OVERALL DIMENSIONS			VOLUME	WEIGHT
		HEIGHT	WIDTH	DEPTH		
	1	6¾"	3½"	15¼"	0.208 cu. ft.	2.2 lbs.

TABLE 8-3. LIST OF MAJOR UNITS

SYMBOL GROUP	NAME OF MAJOR UNIT	NAVY TYPE	DESIGNATION
100-299	Radio Receiver		R-366/TRR-5
300	Accessories		

TABLE 8-4. PARTS LIST

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
A-101		Not used	
A-102	2Z3352.37 17-C-945001-846	COVER: cover for phone jack J-103; steel dull black finish; 43/64" lg x 39/64" wd x 3/32" thk o/a; mtg holes 3/8" diam on 1 leaf; spring closing; Croname #A22227; Espey Part/Dwg #22.457	Cover for J103
A-103	2Z1244-76 16-B-750001-356	BRACKET: shaft support; bronze brg, per Navy Spec #46B22g, Grade II; L shaped; 5.099" lg x 4.331" wd x 1 7/16" h less shaft retainer, 2 1/8" lg x 1/2" wd x 1/2" h; 2" mtg holes #8-32 NC-2 tap 3.250" c to c; Espey Part/Dwg #21.1015 and #27.3135	Turret shaft support
A-104	2Z1244-77 16-B-75001-357	BRACKET: turret shaft support; bronze brg per Navy Spec #46B22g, Grade II, L shape, 4" lg x 2.685" h x 1 7/16" wd less shaft retainer 2 7/16" lg x 1/2" wd x 1/2" h; 2 mtg holes #8-32 NC-2 tap 3 1/4" c to c; Espey Part/Dwg #21.1014 and #27.3136	Turret shaft support
A-105 thru A-300		Not used	
A-301	2Z1891-851 16-C-170001-337	CASE: Army-Navy Case CY-851/TRR-5; radio rec and spkr transit case; plywood with aluminum facing inside and out, color USMC Green; 33 1/4" lg x 16 3/4" wd x 23" d; 1 compartment w/plywood spkr mtg panel and rubber mtg guides for retaining 2 spring loaded casket type handles on ends; water tight construction, 4 metal feet for standing case on end; Espey Part/Dwg #22.350; BuShips Spec #CS1116	Transit case
A-302	2Z6820.371 16-M-78552-8646	MOUNTING: for mtg radio receiver; c/o the following Espey Part/Dwgs, 4 ea #21.1773 locating blocks, 2 ea #21.1596 channel cross, 1 ea #21.1597 channel left side, and 1 ea #21.1598 channel right side; channels, 53 S extruded aluminum, block, 24 S aluminum; rectangular shape; 18 5/8" lg x 18 1/4" wd x 3/4" thk; 4 mtg holes 0.390" on 15 1/4" x 12 1/4" mtg/c; Espey Part/Dwg #21.910	Supports radio receiver cabinet
A-303		Not used	
A-304	2Z3351-298 16-C-650001-432	COVER: chassis compartment cover; c/o Espey Part/Dwg #27.2207 screen and #22.374 back cover; aluminum alloy clear anodized; 19 7/16" lg x 12 7/16" wd x 3/8" thk o/a; 10 mtg holes 0.169" diam, 4 holes on 7" x 17 3/4" mtg/c, 6 holes in 3 rows on 7" x 11" mtg/c; Espey Part/Dwg #22.407	Back cover
A-305	2Z3351-299 16-C-650001-433	COVER: chassis compartment cover; c/o the following Espey Part/Dwg, 1 ea #22.625 cover, 1 ea #21.1967 schematic plate and 2 ea #35.1152 anchor nut; aluminum alloy, dichromate dip; 16 7/8" lg x 6 3/8" wd x 6 7/16" h; 2 mtg holes, 0.228" diam, 4 3/8" c to c, 2 anchor nuts, #10-32, 4 7/8" c to c on right angle bend; Espey Mfg Co., N. Y. Part/Dwg #22.627	RF turret cover assembly
A-306	2Z7091-563 16-P-401881-180	PLATE, COVER: cover for IF amp; aluminum alloy, dichromate dip, lacquer; 14 7/8" lg x 2 1/8" wd x 0.081" thk; 6 #AJ3-30 Dzus fasteners in 2 rows spaced 2.093" apart, spaced 6.625" apart within rows; Espey Mfg Co Part/Dwg #21.1033	Cover for IF amplifier
A-307	2Z3351-296 16-C-650001-434	COVER: chassis compartment cover; aluminum alloy, hot dichromate dip, lacquer; 16 7/8" lg x 6 7/16" h x 6 3/8" w; 2 mtg holes 0.228" diam 4 3/8" c to c and 2 holes 0.250" diam 4 7/8" c to c on right angle bend; Espey Part/Dwg #22.625	RF turret cover
A-308	2Z7091-564 16-P-401881-181	PLATE, COVER: chassis compartment cover; aluminum alloy, dichromate dip finish; 14 7/8" lg x 7 3/8" wd x 0.113" thk; 6 Dzus #AJ3-30 fasteners in 2 rows 6.687" apart, spaced 6 3/8" apart within rows; Espey Part/Dwg #21.1032	Cover for power supply

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
A-309	2Z1578-35 16-C-10630-1866	CABINET: for mtg receiver set; aluminum, clear anodize, dichromate seal finish, exterior-zinc chromate, USMC green enamel; empty: 19½" lg x 12¾" wd x 16½" d; incl left and right side rails and guides, bottom and rear louvres screened for front panel; Espey Part/Dwg #22.424	Mounts and contains receiver set
A-310	2Z3351-297 16-C-650001-431	COVER: cover for RF tuner; aluminum alloy, dichromate dip, lacquer; 14⅞" lg x 6" wd x 0.081" thk; mts by 6 Dzus #AJ3-30 fasteners in 2 rows spaced 5.312" apart, first row 3 holes spaced 0.812" x 6.625", second row has 3 holes spaced 3.156" x 4.437" x 6.625"; Espey Part/Dwg #21.1034	Cover for RF tuner
C-101	3D9012V-23 16-C-64452-3811	CAPACITOR, VARIABLE: glass; cylindrical plunger type, 1 sect; 1 to 12 mmf; 2000 vdcw max; 1⅜" lg x ⅜" diam; 1 copper wire term, other term mtg bushing; mts in chassis hole by #12-24 thd bushing; scdr slot adj; Espey Part/Dwg #20.058	Trimmer for antenna transformer T-101
C-102		Same as C-101	Trimmer for 1st RF transformer T-106
C-103		Same as C-101	Trimmer for 2nd RF transformer T-111
C-104	3D9015-141 16-C-15980-9005	CAPACITOR, FIXED: ceramic dielectric; JAN Type #CC21SL150G; 15 mmf p/m 2%; neg temp coef 330 (tol plus 500 minus 718) mmf/mf/°C; 500 vdcw; 0.562" lg x 0.250" diam; 2 axial wire lead term; ins; Spec #JAN-C-20A	Fixed tuning capacitor for antenna transformer T-105
C-105		Same as C-101	Trimmer for antenna transformer T-102
C-106		Same as C-101	Trimmer for 1st RF transformer T-107
C-107		Same as C-101	Trimmer for 2nd RF transformer T-112
C-108	3D9267VE7 16-C-63520-8651	CAPACITOR, variable: air dielectric; 4 sect plate meshing type; 4.2 to 267.7 mmf ea sect; SLF tuning characteristic ea sect; 0.018" air gap; 9⅝" lg x 3⅛" wd x 3⅜" h, drive shaft ¼" diam and extends ⅝" from capacitor; no adjustment; 14 copper, silver pl plates ea sect; 182 deg clockwise rotation of rotor, 270 deg counter-clockwise rotation main dial gear, 2700 deg clockwise rotation of drive shaft (Vernier dial); steatite, grade L-5 per spec JAN-I-10 insulation; silicone impregnated; solder lug term.; mts by 4 spade bolts 8-32 thd, three on right triangle 6¼ in. x 1.343 in. c/c, one on right side ⅞" from bottom; includes gear drive marked w/L6.083, C-108A, C-108B, C-108C and C-108D; Espey part/dwg no. N17.046	Main tuning capacitor
C-109		Same as C-101	Trimmer for antenna transformer T-103
C-110		Same as C-101	Trimmer for 1st RF transformer T-108
C-111		Same as C-101	Trimmer for 2nd RF transformer T-113
C-112	3K2027121 16-C-29613-2676	CAPACITOR, FIXED: mica dielectric; JAN Type #CM20B-271K; 270 mmf p/m 10%; 500 vdcw; temp coef ltr B; ⅜" lg x ⅜" wd x 5/32" thk; molded low loss bakelite case; 2 axial wide lead term #20 AWG, 1⅛" lg; Espey Part/Dwg #25.248; Spec #JAN-C-5	Grid-coupling capacitor for V-101
C-113		Same as C-101	Trimmer for antenna transformer T-104
C-114		Same as C-101	Trimmer for RF transformer T-109

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
C-115		Same as C-101	Trimmer for RF transformer T-114
C-116	3DA10-367 16-C-42765-4879	CAPACITOR, FIXED: paper dielectric; JAN Type #CN35A-103M; 10,000 mmf p/m 20%; 600 vdcw; molded bakelite case; 13/32" x 13/32" x 11/32" thk; 2 axial wire leads #18 AWG 1¼" lg; Espey Part/Dwg #25.306; JAN Spec #JAN-C-91	A.G.C. bypass
C-117	3DA50-420 16-C-44287-6667	CAPACITOR, FIXED: paper dielectric; JAN Type #CP29A-2EF503M; 50,000 mmf p/m 20%; 600 vdcw; HS metal case; 1⅜" lg x ⅝" diam; 1 axial wire lead term; 1 side int gnd to case; mts by integral tangential bkt, 9/32" diam mtg hole; Espey Part/Dwg #25.279; Spec #JAN-C-25	Cathode bypass for V-101
C-118		Same as C-101	Trimmer for antenna transformer T-105
C-119	3DA10-380 16-C-42762-6654	CAPACITOR, FIXED: paper dielectric; JAN Type #CN20E-103M; 10,000 mmf p/m 20%; 120 vdcw; molded bakelite case; 13/32" lg x 13/32" wd x 9/32" thk max o/a; 2 axial wire leads #20 AWG 1⅛" lg; no int gnd connections; Espey Part/Dwg #25.423; Spec #JAN-C-91	Filament bypass for V-101
C-120		Same as C-101	Trimmer for 1st RF transformer T-110
C-121		Same as C-117	Screen bypass for V-101
C-122		Same as C-101	Trimmer for 2nd RF transformer T-115
C-123	3K3510324 16-C-33627-7705	CAPACITOR, FIXED: mica dielectric; JAN Type #CM35B-103M; 10,000 mmf p/m 20%; 300 vdcw; temp coef ltr B; 13/32" lg x 13/32" wd x 11/32" thk; molded bakelite case; 2 axial wire leads #18 AWG, 1⅛" lg; Espey Part/Dwg #25.547; Spec #JAN-C-5	Plate supply bypass for V-101
C-124	3D9010-84 16-C-15921-2998	CAPACITOR, fixed: ceramic dielectric; JAN type CC21CH-100F; 10 mmf ± 1%; zero temp coef (tol plus 60, minus 110) mmf/mf/°C; 500 vdcw; 0.562 in. lg x .25 in. diam; 2 axial wire leads, ceramic insulation; per Spec #JAN-C-20A	Fixed tuning capacitor for secondary of T-110
C-125		Same as C-112	Fixed tuning capacitor for 1st RF transformer T-106
C-126	3K2010121 16-C-28558-1676	CAPACITOR, FIXED: mica dielectric; JAN Type #CM20B-101K; 100 mmf p/m 10%; 500 vdcw; temp coef ltr B; 13/32" lg x 13/32" wd x 9/32" thk max o/a; molded bakelite case; 2 axial wire lead term; term mtd; Spec JAN-C-5	Fixed tuning capacitor for 1st RF transformer T-107
C-127	3D9005-42 16-C-15627-9158	CAPACITOR, FIXED: ceramic dielectric; JAN Type #CC21-CH050D; 5 mmf p/m 0.5 mmf; zero temp coef 0 (tol plus 60 minus 110) mmf/mf/°C; 500 vdcw; 0.562" lg x 0.250" diam; 2 axial wire lead term; term mtd; ceramic ins; Espey Part/Dwg #25.532; Spec #JAN-C-20A	Fixed tuning capacitor for 1st RF transformer T-109
C-128		Same as C-112	Grid coupling capacitor for V-102
C-129		Same as C-116	A.G.C. bypass
C-130		Same as C-117	Cathode bypass capacitor for V-102
C-131		Same as C-119	Filament bypass for V-102

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
C-132		Same as C-123	Screen bypass for V-102
C-133		Same as C-123	Plate supply bypass for V-102
C-134		Same as C-104	Fixed tuning capacitor for 2nd RF transformer T-115
C-135		Same as C-112	Fixed tuning capacitor for 2nd RF transformer T-111
C-136		Same as C-126	Fixed tuning capacitor for 2nd RF transformer T-112
C-137		Same as C-127	Fixed tuning capacitor for 2nd RF transformer T-113
C-138		Same as C-123	Cathode bypass for V-103
C-139		Same as C-119	Filament bypass V-103
C-140	3D9100-272 16-C-17076-2560	CAPACITOR, FIXED: ceramic dielectric; JAN Type #CC26-SL101J; 100 mmf p/m 5%; neg temp coef 330 (tol plus 500 minus 718) mmf/mf/°C; 500 vdcw; 0.812" lg x 0.250" diam; axial leads; ceramic insulation; Espey Part/Dwg #25.580; Spec #JAN-C-20A	Grid coupling capacitor for V-104
C-141	3DA500-451 16-C-47321-9648	CAPACITOR, FIXED: paper dielectric; JAN Type #CP53B-1EF504V; 1 sect; 0.5 mf plus 20% minus 10%; 600 vdcw; HS metal can; 1 13/16" lg x 1" wd x 1" h; 2 solder lug terminals on side; no int gnd; 2 integral mtg ears w/hole in ea spaced 2 1/8" c to c; Spec #JAN-C-25	B+ bypass
C-142	3D9024-41 16-C-16172-9005	CAPACITOR, FIXED: ceramic dielectric; JAN Type #CC21-SL240G; 24 mmf p/m 2%; neg temp coef 330 (tol plus 500 minus 718) mmf/mf/°C; 500 vdcw; 0.562" lg x 0.250" diam; 2 axial lead term; ins; Spec #JAN-C-20A	Fixed tuning capacitor for oscillator coil L-105
C-143	3K3556243 16-C-32821-1658	CAPACITOR, FIXED: mica dielectric; JAN Type #CM35D-562G; 5600 mmf p/m 2%; 500 vdcw; temp coef ltr "D"; 33/64" lg x 33/64" wd x 3/16" thk max o/a; molded bakelite case; 2 axial wire lead term; term mtd; Espey #25.637; Spec #JAN-C-5	Padder capacitor for oscillator coil L-105
C-144	3K2036143 16-C-29813-9926	CAPACITOR, FIXED: mica dielectric; JAN Type #CM20D-361G; 360 mmf p/m 2%; 500 vdcw; temp coef ltr D; 33/64" lg x 33/64" wd x 3/32" thk max o/a; molded bakelite case; 2 axial wire lead term; term mtd; Spec #JAN-C-5	Padder capacitor for oscillator coil L-101
C-145		Same as C-104	Fixed tuning capacitor for oscillator coil L-101
C-146	3K2575143 16-C-30658-2122	CAPACITOR, FIXED: mica dielectric; JAN Type#CM25D-751G; 750 mmf p/m 2%; 800 vdcw; temp coef letter D; 1 1/16" lg x 33/64" wd x 3/32" thk; molded low-loss phenolic case; 2 axial wire lead term; Espey #26.635; Spec #JAN-C-5	Padding capacitor for oscillator coil L-102
C-147		Same as C-104	Fixed tuning capacitor for oscillator coil L-102
C-148		Same as C-124	Fixed tuning capacitor for oscillator coil L-103

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
C-149	3K3018243 16-C-31660-5014	CAPACITOR, FIXED: mica dielectric; JAN Type #CM30D-182G; 1800 mmf p/m 2%; 500 vdcw; temp coef ltr D; 33/64" lg x 21/64" wd x 5/32" thk max o/a; molded bakelite case; 2 axial wire lead term; term mtd; Spec #JAN-C-5	Padder capacitor for oscillator coil L-103
C-150		Same as C-124	Fixed tuning capacitor for oscillator coil L-104
C-151	3K3539243 16-C-32425-4658	CAPACITOR, FIXED: mica; JAN Type #CM35D392G; 3900 mmf p/m 2%; 500 vdcw; temp coef ltr D; 33/64" lg x 21/64" wd x 13/32" thk max o/a; molded bakelite case; 2 axial wire lead term; term mtd; Spec #JAN-C-5	Padder capacitor for oscillator coil L-104
C-152		Same as C-123	Screen bypass for V-103
C-153		Same as C-142	Injector grid coupling for V-103
C-154	3DA100-1088 16-C-45807-7304	CAPACITOR, FIXED: paper dielectric; JAN Type #CP29A-2EF104M; single sect; 100,000 mmf p/m 20%; 600 vdcw; HS; 1¾" lg x ⅝" diam; oil filled; 1 wire lead term; 1 side int gnd; integral mtg bkt single hole 9/32" diam; Spec #JAN-C-25	Plate bypass for V-104
C-155	3D9005-114 16-C-15629-4669	CAPACITOR, FIXED: ceramic dielectric; 5 mmf p/m 0.5 mmf; pos temp coef 100 (tol plus 60 minus 60) mmf/mf/°C; 1000 vdcw; ⅝" lg x 3/8" wd across flats of mtg bushing; 2 axial hooked wire lead term; chassis mt by #12-28 thd and nut; not ins; Erie Type #357; Espey Part/Dwg #25.538	Feed-through for plate of V-103
C-156	3K2043142 16-C-30003-8206	CAPACITOR, FIXED: mica dielectric; JAN Type #CM20D-431J; 430 mmf p/m 5%; 500 vdcw; temp coef ltr D; 21/64" lg x 13/32" wd x 3/32" thk; molded bakelite case; 2 axial wire leads #20 AWG 1⅛" lg; Espey Part/Dwg #25.536; Spec #JAN-C-5	Grid coupling capacitor for V-105
C-157	3K2015132 16-C-28975-1601	CAPACITOR, FIXED: mica dielectric; JAN Type #CM20C-151J; 150 mmf p/m 5%; 500 vdcw; temp coef ltr C; 21/64" lg x 13/32" wd x 3/32" thk; molded bakelite case; 2 axial wire lead term #20 AWG 1⅛" lg; Spec #JAN-C-5	Fixed tuning capacitor for primary of T-116
C-158		Same as C-116	Bypass plate supply for V-103
C-159		Same as C-116	Plate bypass capacitor for V-105
C-160		Same as C-116	Cathode coupling capacitor for V-105
C-161		Same as C-140	Loading capacitor for secondary of T-116
C-162		Same as C-140	Loading capacitor for secondary of T-116
C-163	3D9006V-22 16-C-58054-8405	CAPACITOR, VARIABLE: air dielectric; plate meshing type, dual sect; 2.8 to 6 mmf per sect; SLC tuning characteristic; 0.015" air gap; 33/64" lg x 1½" h x 11/16" wd less shaft extension, glass base melamine shaft extension ¼" diam x 6½" lg, flatted 0.035" d x 3/8" lg; shaft extension adj; 6 silver pl plates, 360 deg rotation clockwise; ceramic ins L-4, silicone treated, per JAN-1-10; 3 solder lug term and 4 post term; 2 tapped inserts #4-40 3½" c to c; split stator; Hammerlund Type #SA-179, modified; Espey Part/Dwg #6.094	Crystal phasing control

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
C-164		Same as C-116	Bypass for L-106 return
C-165	3K2082033 16-C-28204-9521	CAPACITOR, FIXED: mica, dielectric; JAN Type #CM20C-820G; 82 mmf p/m 2%; 500 vdcw; temp coef ltr C; 31/64" lg x 13/32" wd x 3/32" thk; molded low loss phenolic case; 2 axial wire lead term; Espey Part/Dwg #25.406; Spec #JAN-C-5	Fixed tuning capacitor for L-106
C-166		Same as C-117	Cathode bypass capacitor for V-106
C-167		Same as C-116	Screen bypass capacitor for V-106
C-168		Same as C-156	Fixed tuning capacitor primary for T-117
C-169		Same as C-156	Fixed tuning capacitor secondary for T-117
C-170		Same as C-116	Bypass capacitor plate supply for V-106
C-171		Same as C-117	Cathode bypass capacitor for V-107
C-172A	3DA100-731 16-C-53192-8190	CAPACITOR, FIXED: paper dielectric; JAN Type #CP53B-4EF104L; 2 sect; 100,000 mmf ea sect p/m 15%; 600 vdcw; HS metal case; 1 13/32" lg excluding mtg ft x 3/4" h x 1" wd excluding term; 3 solder lug term 3/4" h, located on side, spaced 13/32" c to c; no int gnd connections; 2 mtg ft on side, 2 mtg holes 13/64" diam on 2 1/8" mtg/c; Spec #JAN-C-25	Plate supply bypass for V-108
C-172B		Same as C-172A	Screen bypass for V-108
C-173		Same as C-116	Screen bypass for V-107
C-174		Same as C-119	Filament bypass for V-108
C-175		Same as C-156	Fixed tuning capacitor for primary of T-118
C-176		Same as C-156	Fixed tuning capacitor for secondary of T-118
C-177		Same as C-140	Grid coupling capacitor for V-108
C-178		Same as C-116	Plate supply bypass for V-107
C-179		Same as C-140	Bypass for secondary return of T-118
C-180		Same as C-156	Fixed tuning capacitor for L-107
C-181	3D9025V-95 16-C-64133-6581	CAPACITOR, VARIABLE: air dielectric; plate meshing type, 1 section; 3 to 25 mmf; SLC characteristic; air gap 0.015"; 1 5/32" lg excluding shaft and mtg post 1/8" wd x 1 3/32" h, shaft 1/4" diam x 1/2" lg FMS; shaft extension adj; 7 nickel pl plates; 360 deg rotation; ceramic insulation grade L-4 per JAN-I-10, silicone treated; 1 post type term, 1 solder lug term, both tinned; 2 tapped #4-40 inserts 0.656" c to c; Hammarlund type APC-25; Espey Part/Dwg #6.096	C.W. oscillator tuning control
C-182		Same as C-116	Bypass capacitor for A.G.C. line

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
C-183	3DA50-500	CAPACITOR, FIXED: paper dielectric; 50,000 mmf ±20% 200 vdcw; hermetically sealed; 1¼" lg x 0.312" diam; stabilized wax impregnated and filled; 2 axial wire lead term; internally grounded; terminal mounting; Pyramid Electric Co. type EPGHV; Espey part #25.861	Part of noise-limiter delay network
C-184	3K3020232 16-C-31797-5445	CAPACITOR, FIXED: mica dielectric; JAN Type #CM30C-202J; 2000 mmf p/m 5%; 500 vdcw; temp coef ltr C; 23/32" lg x 7/16" wd x 5/32" thk; molded bakelite case; 2 axial wire lead term; Espey Part/Dwg #25.543; Spec #JAN-C-5	Audio coupling from S-106
C-185	3DB50-71 16-C-19956-5648	CAPACITOR, FIXED: electrolytic; JAN Type #CE63D500F; 1 sect; 50 mf; 25 vdcw; working temp range 0° to plus 65°C; 1 1/32" lg x 1" wd x 13/32" thk excluding term and mtg lugs; HS metal case; 2 solder lug term on side 3/16" h, spaced 1 1/16" c to c; no int gnd connection; 2 mtg holes 7/64" diam on 2 1/8" mtg/c; Espey Part/Dwg #25.391; Spec #JAN-C-62	Cathode bypass for V-110
C-186	3DA20-181 16-C-43117-2318	CAPACITOR, FIXED: paper dielectric; JAN Type #CP29A1-EF203K; single sect; 20,000 mmf ±10%; 600 vdcw; hermetically sealed metal case; 1 5/8" lg x 1/4" diam; 2 axial wire lead term; integral mtg bracket single hole 5/32" diam; Espey #25.313; Spec #JAN-C-25	Tone control capacitor
C-187		Same as C-116	Audio plate coupling for V-110
C-188	3K2568121 16-C-30536-5072	CAPACITOR, FIXED: mica dielectric; JAN Type #CM25B-681K; 680 mmf p/m 10%; 500 vdcw; temp coef ltr B; 1 1/16" lg x 13/32" wd x 5/32" thk max o/a; molded bakelite case; 2 axial wire lead term; term mtd; Spec #JAN-C-5	Audio grid coupling for V-111
C-189		Same as C-116	Output coupling capacitor from V-116 to grid of V-110
C-190		Same as C-116	Grid coupling for V-112
C-191		Same as C-185	Cathode bypass for V-111, V-112
C-192		Same as C-185	Cathode bypass capacitor for V-110
C-193		Same as C-184	Plate bypass capacitor for V-111
C-194		Same as C-101	Trimmer for oscillator coil L-101
C-195		Same as C-101	Trimmer for oscillator coil L-102
C-196		Same as C-101	Trimmer for oscillator coil L-103
C-197		Same as C-101	Trimmer for oscillator coil L-104
C-198		Same as C-101	Trimmer for oscillator coil L-105
C-199		Same as C-184	Plate bypass capacitor for V-112
C-200		Not used	
C-201		Not used	

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
C-202A	3DB40-75 16-C-22000-7560	CAPACITOR, FIXED: electrolytic; JAN Type #CE32F400R; 2 sect; 40 mf ea sect; 450 vdcw each sect; working temp range minus 40° to 65°C; 4¼" lg excluding term x 1⅜" diam; HS metal case; 3 solder lug term ⅝" h; neg term not internally gnd; no mtg furnished; Espey Part/Dwg #25.479; Spec #JAN-C-62	Input filter capacitor for L-108
C-202B		Same as and contained in the same case with C-202A	Output filter capacitor for L-108
C-203	3DB45-2 16-C-19943-9063	CAPACITOR, FIXED: electrolytic; JAN Type #CE31F450R; 1 sect; 45 mf; 450 vdcw; working temp range minus 40° to 65°C; 2¾" lg excluding term x 1⅜" diam; HS metal case; 2 solder lug term ⅝" h; neg term gnd internally; mtg not furnished; Espey Part/Dwg #25.530; Spec #JAN-C-62	Audio decoupling filter capacitor
C-204		Same as C-127	Plate coupling for V-108 (C.W.O.)
C-205	3K2011133 16-C-28653-4321	CAPACITOR, FIXED: mica dielectric; JAN Type #CM20C-111G; 110 mmf p/m 2%; 500 vdcw; temp coef ltr C; 1¼" lg x 1/32" wd x 5/32" thk max o/a; molded bakelite case; 2 axial wire lead term; term mtd; Spec #JAN-C-5	Padder capacitor for oscillator coil L-102
C-206		Not used	
C-207		Not used	
C-208		Not used	
C-209		Not used	
C-210		Same as C-127	Fixed tuning capacitor for secondary of 2nd RF coil T-112
C-211		Same as C-127	Fixed tuning capacitor for secondary of 2nd RF coil T-114
C-212		Same as C-127	2nd RF fixed tuning capacitor
C-213		Not used	
C-214		Not used	
C-215	3D9008-50	CAPACITOR, FIXED: ceramic dielectric; JAN Type #CC21-SL080D; 8 mmf ±0.50 mmf; neg temp coef 330 (tol plus 500 minus 718) mmf/mf/°C; 500 vdcw; 0.652" lg x 0.250" diam; 2 axial wire lead term; ceramic ins; Spec #JAN-C-20A	Capacitor coupling primary to secondary on T-110
C-216	3D9045V-15 16-C-64133-6581	CAPACITOR, VARIABLE: ceramic dielectric; JAN Type #CV11C450; rotary type; 7-45 mmf; 500 vdcw; temp coef —500 mmf/mf/°C; 3/32" lg x 1/4" wd x 3/32" h; solder lug term; two 0.120" diam mtg holes in base on 1/8" mtg/c; screwdriver slot adjustment; ceramic ins; Spec #JAN-C-81	Variable tuning capacitor for L-109
C-217	3K2015133 16-C-28969-9121	CAPACITOR, FIXED: mica dielectric; JAN Type #CM20-C151G; 150 mmf p/m 2%; 500 vdcw; temp coef letter C; 1/4" lg x 1/32" wd x 5/32" thk; molded bakelite case; 2 axial wire lead term #20 AWG 1⅛" lg; Spec #JAN-C-5	Fixed tuning capacitor for L-109
C-218	3D9002-49 16-C-15433-4505	CAPACITOR, FIXED: ceramic dielectric; JAN Type #CC21-SL020; 2 mmf p/m 0.25 mmf; neg temp coef 330 (tol plus 500 minus 718) mmf/mf/°C; 500 vdcw; 0.562" lg x 0.250" diam; 2 axial wire lead term; ceramic ins; Spec #JAN-C-20A	Capacitor coupling primary to secondary on T-108
C-219		Same as C-218	Capacitor coupling primary to secondary on T-109

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
C-220		Same as C-215	Capacitor coupling primary to secondary on T-115
C-221		Same as C-218	Capacitor coupling primary to secondary on T-114
C-222		Same as C-218	Capacitor coupling primary to secondary on T-113
C-223		Same as C-147	Fixed tuning capacitor for secondary of T-111
C-224	3K2047142 16-C-30109-3806	CAPACITOR, FIXED: mica dielectric; JAN Type #CM20D-471J; 470 mmf p/m 5%; 500 vdcw; temp coef letter D; .41" lg x .12" wd x .32" thk; molded bakelite case; 2 axial wire leads #20 AWG 1⅛" lg; Spec #JAN-C-5	Part of diode filter for V-109.
C-225		Same as C-153	Plate input capacitor for V-115
C-226	3DA100-688 16-C-45777-3316	CAPACITOR, FIXED: paper dielectric; JAN Type #CP29A1-EF104K; single sect; 100,000 mmf ±10%; 600 vdcw; HS; 1⅞" lg x ⅝" diam; 2 axial wire lead term; integral mtg bracket single hole .32" diam; Espey #25.859; Spec #JAN-C-25	B+ RF bypass
C-227	3D9005-69 16-C-15636-2514	CAPACITOR, fixed: ceramic dielectric; JAN type #CC21SL-050F; 5 mmf ±1%; neg temp coef 330 (tol plus 500 minus 718) mmf/mf°C; 500 vdcw; 0.562 in. lg x 0.250 in. diam; 2 axial wire lead term.; insulated; Spec #JAN-C-20A	
E-101	2Z8304.154 16-S-34557-8350	SHIELD, TUBE: JAN Type #TSF0T102; copper or brass nickel pl; cylindrical, ½" diam open top; bayonet type mtg; 0.810" ID x 1¾" lg o/a; 0.940" max across mtg protrusions; conical spring ⅝" free lg inside top, RSW, stamped w/ JAN Type #TSF0T102; Espey Part/Dwg #23.192; Spec #JAN-S-28A	Tube shield for V-101
E-102		Same as E-101	Tube shield for V-102
E-103		Same as E-101	Tube shield for V-103
E-104		Same as E-101	Tube shield for V-104
E-105		Same as E-101	Tube shield for V-105
E-106		Same as E-101	Tube shield for V-106
E-107		Same as E-101	Tube shield for V-107
E-108		Same as E-101	Tube shield for V-108
E-109	2Z8304.57 16-S-34520-3862	SHIELD, TUBE: brass, nickel pl; cylindrical shape, w/½" hole in top; bayonet type mtg; 1⅜" lg x 0.810" ID x 0.930" wd across mtg protrusions; mark w/ TSF0T101; Spec #JAN-S-28A, JAN Type #TSF0T101	Tube shield for V-109
E-110	2Z8304.183 16-S-34576-6513	SHIELD, TUBE: JAN Type #TSF0T105; brass or copper, nickel pl; cylindrical, .53" diam open top; bayonet type mtg; 0.950" ID x 1.18" lg, 1.050" wd across protrusions; conical spring ⅝" free lg inside top, RSW stamped w/ JAN Type #TSF0T105; Espey Part/Dwg #23.189; Spec #JAN-S-28A	Tube shield for V-110
E-111	2Z8304.172 16-S-34607-8400	SHIELD, TUBE: JAN Type #TSF0T103; copper or brass nickel pl; cylindrical, ½" diam opening in top; bayonet type mtg; 0.810" ID x 2¼" lg o/a, 0.930" wd across mtg protrusions; conical spring ⅝" free lg inside top, RSW, stamped w/ JAN Type TSF0T103; Espey Part/Dwg #23.190; Spec #JAN-S-28A	Tube shield for V-111
E-112		Same as E-111	Tube shield for V-112

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
E-113		Not used	
E-114		Same as E-111	Tube shield for V-114
E-115		Not used	
E-116		Not used	
E-117	2Z3600-48 17-G-154401-951	CUSHION: crystal cushion; neoprene; rectangular plate; 2" lg x 3/4" wd x 1/8" thk; Espey Part/Dwg #27.3141	Cushion for crystal Y-101
E-118	3Z12101-22.1 17-T-28218-3901	TERMINAL, STUD: hex shape; Grade L-5 in accordance w/ Spec #JAN-I-10, ceramic silicon impr; 7/16" lg excluding term lug; 60 cycles, 4800 v RMS; 7/16" wd across flats; incl 1 brass stud, cad pl finish #6-32 thd, 1/4" lg on 1 end, and 1 term Cambridge Therm #1558 on other end; Cambridge Therm #X1942-X; Espey Part/Dwg #27.3099	Wiring tiepoint
E-119		Same as E-118	Wiring tiepoint
E-120		Same as E-118	Wiring tiepoint
E-121		Same as E-118	Wiring tiepoint
E-122		Same as E-118	Wiring tiepoint
E-123		Same as E-118	Wiring tiepoint
E-124	2Z5822-410 16-K-700325-301	KNOB: round, fluted, w/ skirt; black plastic; for 1/4" diam shaft; 2 set screws #8-32; white indicator line; 1 1/4" diam x 1 1/8" h o/a; brass insert; ctb 3/4" diam x 1/8" d, skirt diam cut down to 1 1/4"; Kurz Kasch #S-380-64L modified, per Espey Part/Dwg #7.130	Tone control knob
E-125		Same as E-124	Dimmer knob
E-126		Same as E-124	R.F. gain control knob
E-127		Same as E-124	Power supply switch knob
E-128		Same as E-124	A.F. gain control knob
E-129		Same as E-124	Limiter switch knob
E-130		Same as E-124	Selectivity switch control knob
E-131		Same as E-124	Phasing control knob
E-132		Same as E-124	C.W. osc. control knob
E-133	2Z5822-409 16-K-700632-210	KNOB: round; black phenolic; for 1/4" shaft; 2 Allen #8-32 cup point set screws 90 deg apart; white indicating dot; 3/4" thk x 1 3/8" OD; brass insert cad pl iridite or chromate dip; shaft hole 5/8" d; knob fluted around periphery; Espey Part/Dwg #7.145	Band switch knob
E-134		Same as E-133	Control switch knob
E-135	2Z5822-615 16-K-700417-636	KNOB: fluted round; black molded bakelite; for 1/4" shaft; double #10-32 set screw; 2 3/8" OD x 1" h o/a; brass insert; 11/16" d shaft hole; flushing off of brass insert, c/o Espey Part/Dwg #21.1925, SS plate and Kurz-Kasch #S-310-64-BB-B Knob; Espey Part/Dwg #7.160	Main tuning knob
E-136	2Z7390-177 17-S-250051-153	SHELL, CONNECTOR: for use in connecting Army-Navy Radio Frequency Cable RG-58/U to receptacle Navy Type #49194; brass, silver pl; 1" lg x 1" wd x 3/4" h o/a; mts by 4 holes 0.125" diam on 11/16" x 11/16" mtg/c; marked "Amphenol 83-765"; Amphenol #83-765; Espey Part/Dwg #27.3174	Connects J-102 to J-103

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
E-137		Not used	
E-138		Not used	
E-139	2Z3194-48 17-C-83795-6794	BAR ASSEMBLY, SHORTING: for grounding unused RF coils; c/o #21.1954 spring bracket, #6.25D4-4 tubular rivet, and #27.3682 spring-insulator assy; L shaped cont mtd on an L shaped bracket; 3" lg x 2 23/64" wd x 11/16" h o/a; 2 holes on 2½" mtg/c, 1 oval slot; Espey Part/Dwg #21.1955	Shorts adjacent unused antenna and RF coils, grounds RF coils on R.H. side
E-140		Not used	
E-141	2Z3197A-15 17-C-83819-6969	CONTACT ASSEMBLY, COIL: cont point for RF bands; c/o 1 ins board, 8 cont, 8 rivets and 8 double flat springs, flat rectangular ceramic board w/ cont in 2 groups of 4 ea; 4¼" lg x 1¼" wd x 0.360" h excluding cont and springs, 0.746" h o/a; 2 mtg holes 0.189" diam, 3¾" c to c, ctb 0.350" diam x 0.160" d; cont numbered 1 to 8; Espey Part/Dwg #32.1067	Contact point for RF bands
E-142		Same as E-118	Wiring tiepoint
E-143		Same as E-118	Wiring tiepoint
E-144		Same as E-118	Wiring tiepoint
E-145	2Z8877.640 17-S-46763-9803	SPRING: flat type; for grounding turret can to shaft; spring temper phosphor bronze, silver pl; 3/64" wd x 0.489" lg, 0.020" thk matl; 1 mtg hole 0.140" diam on 3/32" mtg/c; Espey Part/Dwg #27.3173	Grounds turret can to shaft
E-146	2Z8309-15 16-S-33571-1036	SHIELD, COIL: aluminum, hot dichromate dip; circular, open bottom, #6-32 integral bolt mtg; 1 13/32" ID x 2" h; 2 spade bolts ¼" lg c to c, 1 wire lead opening on side; Espey Part/Dwg #23.268	IF can
E-147	2Z8309-16 16-S-33571-1035	SHIELD, COIL: zinc iridite finish; rectangular, open bottom; integral bolt mtg; 2" lg x 1 1/16" wd x 4" h; 2 spade bolts diagonally opposite 1" x 1 1/16" c to c, 2 holes ⅜" diam in top; marked "T-117, PRI., SEC."; Espey Part/Dwg #23.226	IF interstage can
E-148	2Z8309-14 16-S-33571-1037	SHIELD, COIL: zinc iridite finish; rectangular, open bottom; integral bolt mtg; 2" lg x 1 7/16" wd x 4" h; 2 spade bolts diagonally opposite 1" x 1 1/16" c to c, 2 holes ½" diam in top; marked "T-118, PRI., SEC."; Espey Part/Dwg #23.227	IF detector can
E-149		Same as E-118	Wiring tiepoint
E-150		Same as E-118	Wiring tiepoint
E-151		Same as E-118	Wiring tiepoint
E-152		Same as E-118	Wiring tiepoint
E-153		Same as E-118	Wiring tiepoint
E-154		Same as E-118	Wiring tiepoint
E-155	2Z8304.283 16-S-35571-1044	SHIELD, COIL: can, drawn aluminum 1/64" thk, steel spade bolts; rectangular; spade bolt mtg; 2 13/32" lg x 1⅛" wd x 1⅛" d; mts by 2 spade bolts #6-32, Espey Part/Dwg #35.1467, spaced approx 1⅛" c to c; can finish-hot dichromate dip and lacquered, spade bolts and rivets cad pl; Espey Part/Dwg #23.287	C.W.O. can
E-156	2Z5822-616 16-K-700439-101	KNOB: fluted, round; brass, dull nickel pl, black nickel and oil finish; 4 mtg holes 0.125" diam spaced 90 deg apart on 2.405" diam bolt, circle, mts on plate; 3" diam x ⅝" thk; concentric within 0.003" on diam, p/o dial lock mechanism, 1.830" inside diam concentric within 0.001" within total indicator reading; Espey Part/Dwg #7.159	Dial lock knob

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
E-157		Same as E-145	Grounds turret can to shaft
E-158	2Z9629-399 16-T-98501-1013	TUNING UNIT, SUB-ASSEMBLY: tunes osc stage; c/o RF coils, capacitors and contact assemblies mtd on turret housing; cyl shaped; 4" diam x 2⅛" h; mts on turret shaft; Espey Part/Dwg #27.3233	Tunes oscillator stage
E-159	2Z9629-400 16-T-98501-1012	TUNING UNIT, SUB-ASSEMBLY: tunes ant stage; c/o RF transformer, capacitors, and cont assemblies mtd on turret housing; cyl shape; 4" diam x 2⅛" h; mts on turret shaft; Espey Part/Dwg #27.3225	Tunes antenna stage
E-160	2Z9629-401 16-T-98501-1015	TUNING UNIT, SUB-ASSEMBLY: tunes 1st RF stage; c/o RF transformers, capacitors, resistors, and cont assemblies mtd on turret housing; cyl shape; 4" diam x 2⅛" h; mts on turret shaft; Espey Part/Dwg #27.3228	Tunes 1st RF
E-161	2Z9629-398 16-T-98501-1014	TUNING UNIT, SUB-ASSEMBLY: tunes 2nd RF stage; c/o RF transformers, capacitors, resistors, and cont assemblies mtd on turret housing; cyl shape; 4" diam x 2⅛" h; mts on turret shaft; Espey Part/Dwg #27.3231	Tunes 2nd RF
E-162		Not used	
E-163	2Z3197A-71 17-C-83782-2617	CONTACT ASSEMBLY, COIL: for turret operated sw; c/o following Espey Parts, 1 ea #27.1953, Insulator, 4 ea #27.2587, Contact and 4 ea #35.1283, washer; steatite ins w/ coin silver cont; rectangular shape; 1.750" lg x 0.625" wd x ½" h; 2 mtg holes 0.116" diam, 1.437" c to c; Espey Part/Dwg 32.1068	Part of a turret operated switch
E-164		Same as E-163	Part of a turret operated switch
E-165		Same as E-163	Part of a turret operated switch
E-166		Same as E-163	Part of a turret operated switch
E-167		Same as E-163	Part of a turret operated switch
E-168		Same as E-163	Part of a turret operated switch
E-169		Same as E-163	Part of a turret operated switch
E-170		Same as E-163	Part of a turret operated switch
E-171		Same as E-163	Part of a turret operated switch
E-172		Same as E-163	Part of a turret operated switch
E-173		Same as E-163	Part of a turret operated switch
E-174		Same as E-163	Part of a turret operated switch
E-175		Same as E-163	Part of a turret operated switch
E-176		Same as E-163	Part of a turret operated switch

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
E-177		Same as E-163	Part of a turret operated switch
E-178		Same as E-163	Part of a turret operated switch
E-179		Same as E-163	Part of a turret operated switch
E-180		Same as E-163	Part of a turret operated switch
E-181		Same as E-163	Part of a turret operated switch
E-182		Same as E-163	
E-183	2C4180-366-1 16-R-33591-1262	RECEIVER, SUBASSEMBLY: filter assem for increasing IF selectivity; c/o the following Espey Parts: 1 Shield #23.270, 1 Capacitor, Fixed #25.550, 2 Capacitor, Fixed #25.306, 2 Capacitor, Fixed #25.580, 1 Capacitor, variable #6.094, 1 Capacitor, Fixed #25.406, 1 Resistor, fixed #R247-35, 1 Resistor, Fixed #R022.34, 1 Resistor, Fixed #R051-34, 1 Resistor, Fixed #R130-34, 1 Resistor, Fixed #R222-35, 1 Resistor, Fixed #R322-35, 1 Switch, Rotary #12.181, 1 Transformer, IF #16.202, 1 Crystal Unit, Quartz #31.053; housed in aluminum shield; 6 positions "BROAD, 2, 3, 4, 5, SHARP"; rect shape w/ 2 control shafts; 4¾" lg x 2¾" wd x 2" h; 2 mtg holes 0.156" diam spaced 1½" c to c on offset mtg bkt and 2 tapped inserts #6-32 spaced 4" c to c on side; all component symbols stamped on inside of shield; 4 wire lead term; Espey Part/Dwg #2.583	Filter assembly for increasing IF selectivity
E-184 thru E-300		Not used	
E-301	2Z299-359 17-C-67444-1285	CONNECTOR, ADAPTER: Navy Type #49192, Sig C Adapter M-359; male 1 end, female other end; 1 round female cont and 1 round male cont; 90 deg angle type; adapts Navy Plug Type #49195 to Navy Plug Type #49194; 1 $\frac{3}{32}$" lg x 1 $\frac{7}{16}$" wd, male end ¾" OD, female end ⅝" OD; right angled cyl zinc body w/ brass coupling ring, silver pl; polystyrene insert; ⅝"-24 coupling thd on female end; Amphenol Part #83-1AP; Espey Part/Dwg #32.1112	Connects to J-102
F-101	3Z1927 17-F-16302-100	FUSE, CARTRIDGE: Navy Type #28032-2, Sig C Fuse FU-27; 2 amp, opens in 1 hr at 135% load and in 2 min or less at 200% load, rated continuous at 110% load; 250 v; 1 time; glass body, ferrule term; non-indicating; 1¼" lg x ¼" diam o/a; ea term ¼" lg x ¼" OD; Bussman Part #AGC-2; Espey Part/Dwg #32.196	Power input fuse
F-102		Same as F-101	Power input fuse
F-103		Same as F-101	Spare fuse
F-104		Same as F-101	Spare fuse
H-101	2Z2636-26 16-C-302837-594	CLAMP: for med octal tube; SS; 1 oval mtg hole for #10 screw; 3" diam x ¾" lg when in open position; accom 1⅜" diam tube base; c/o strap, tension loop, locking clip and mtg bkt; Birtcher Part #926C; Espey Part/Dwg #21.660	Clamp for V-113
H-102	2Z2626.2 16-M-61160-5951	MOUNTING, CAPACITOR: capacitor clamp; steel; cad pl and iridite; 1 bolt; 2 $\frac{3}{64}$" lg x 1 $\frac{13}{32}$" wd x ¾" h o/a incl mtg ears, mts by 2 oval holes $\frac{3}{32}$" lg x $\frac{1}{32}$" wd spaced 1 $\frac{33}{64}$" c to c; 1⅜" ID; to withstand 200 hr salt spray test; Mallory Type #VR3; Espey Part/Dwg #21.504	Clamp for C-202

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By Order of Secretary of the Army:

EARLE G. WHEELER,
General, United States Army,
Chief of Staff.

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J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

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Corps (2)
USA Corps (3)
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USATC Engr (2)
USATC Inf (2)
USATC FA (2)
USATC Armor (2)
Instl (2) except
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Svc Colleges (2)
Br Svc Sch (2)
GENDEP (OS) (2)
Army Dep (2) except
Sacramento (17)
Lexington (12)
Tobyhanna (12)
Ft Worth (8)
Sig Sec, GENDEP (5)
Sig Dep (OS) (12)
WRAMC (1)
AFIP (1)
USA Elct R&D Actv,
White Sands (13)
USA Elct R&D Actv,
Ft Huachuca (2)
USA Trans Tml Comd (1)
Army Tml (1)
POE (1)
OSA (1)
AMS (1)
Army Pic Cen (2)
USA Mob Spt Cen (1)
USA Elct Mat Agcy (25)
Chicago Procurement Dist (1)
USARCARIB Sig Agcy (1)
Sig Fld Maint Shops (3)
Yuma Test Sta (2)
JBUSMC (2)
Units org under fol TOE
(2 cy each UNOINDC)
6-615
6-616
6-617
11-7
11-16
11-57
11-98
11-117
11-155
11-157
11-500 (AA-AE) (4)
11-557
11-587
11-592
11-597

NG: None.
USAR: None.
For explanation of abbreviations used see AR 320-50.

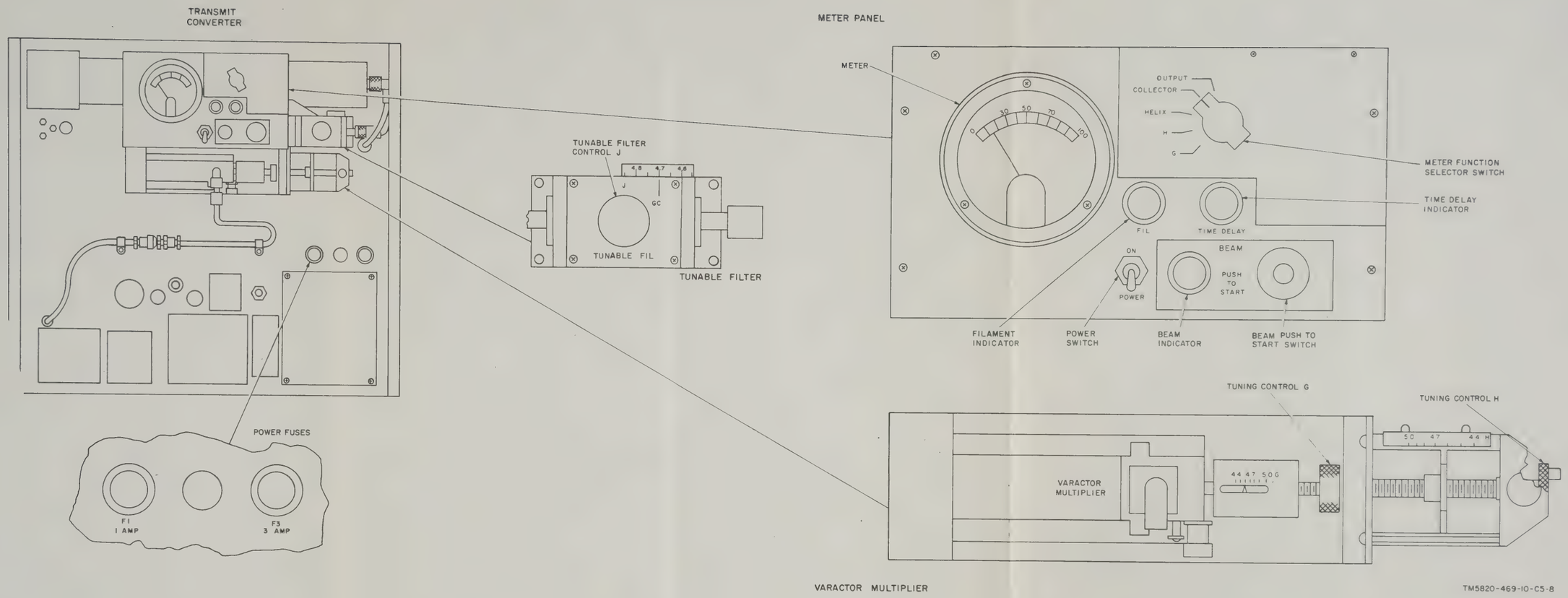
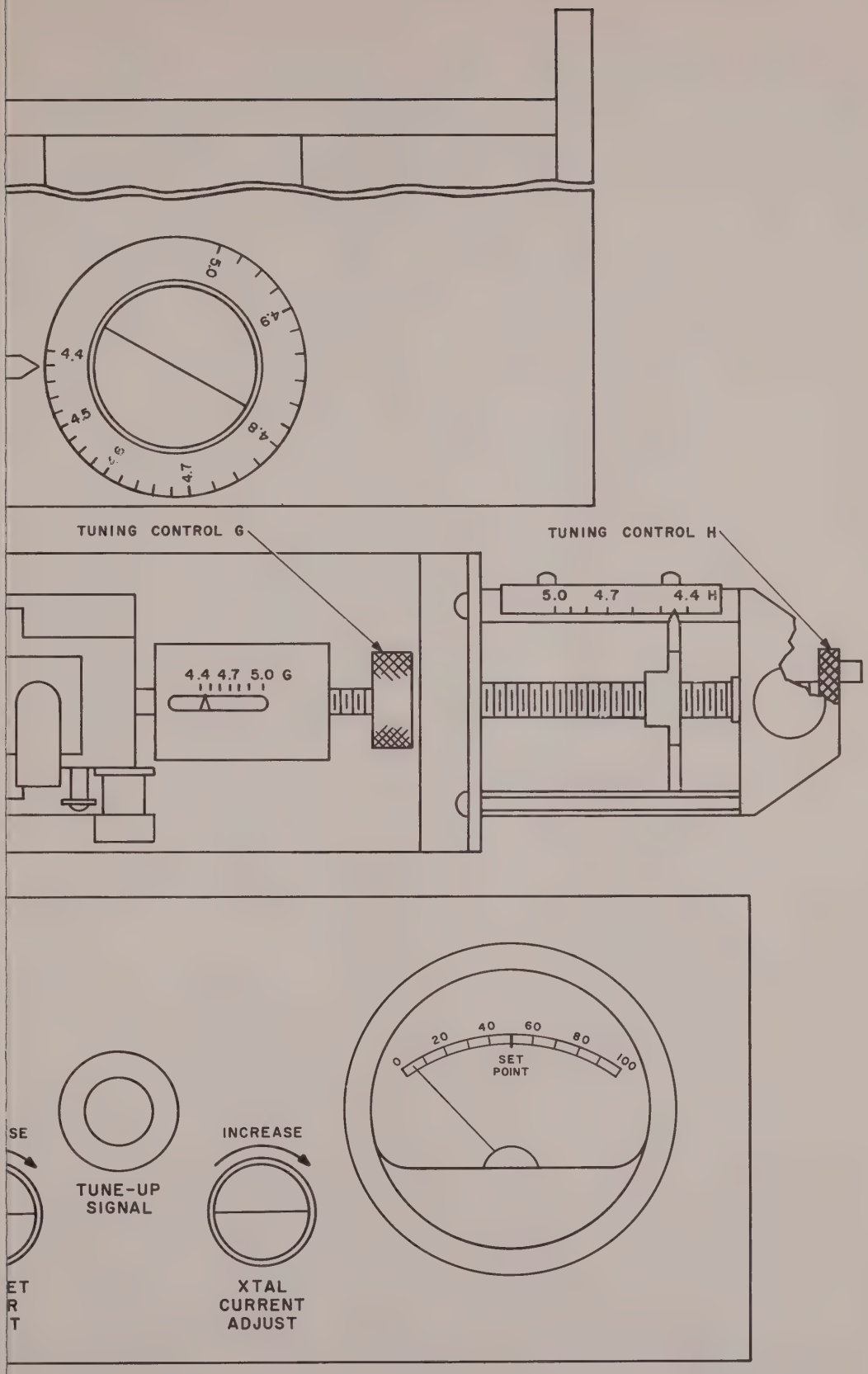


Figure 52.1. Transmit Converter AM-4917/TRC, controls and indicators, AN/TRC-80A.



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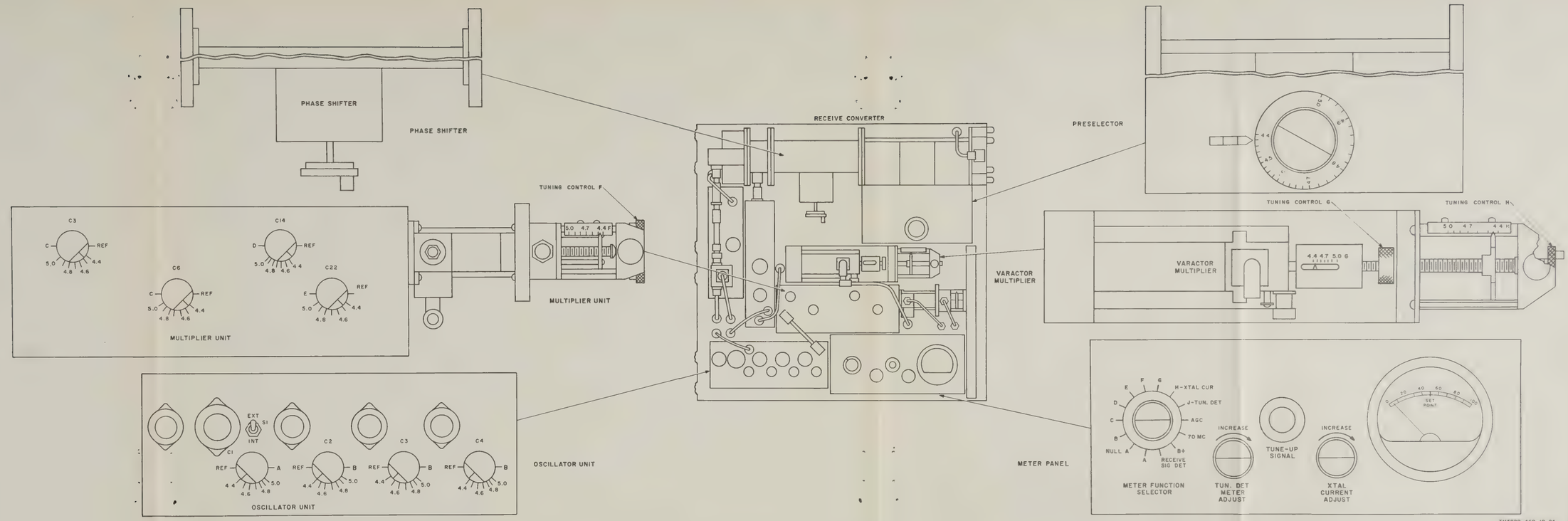
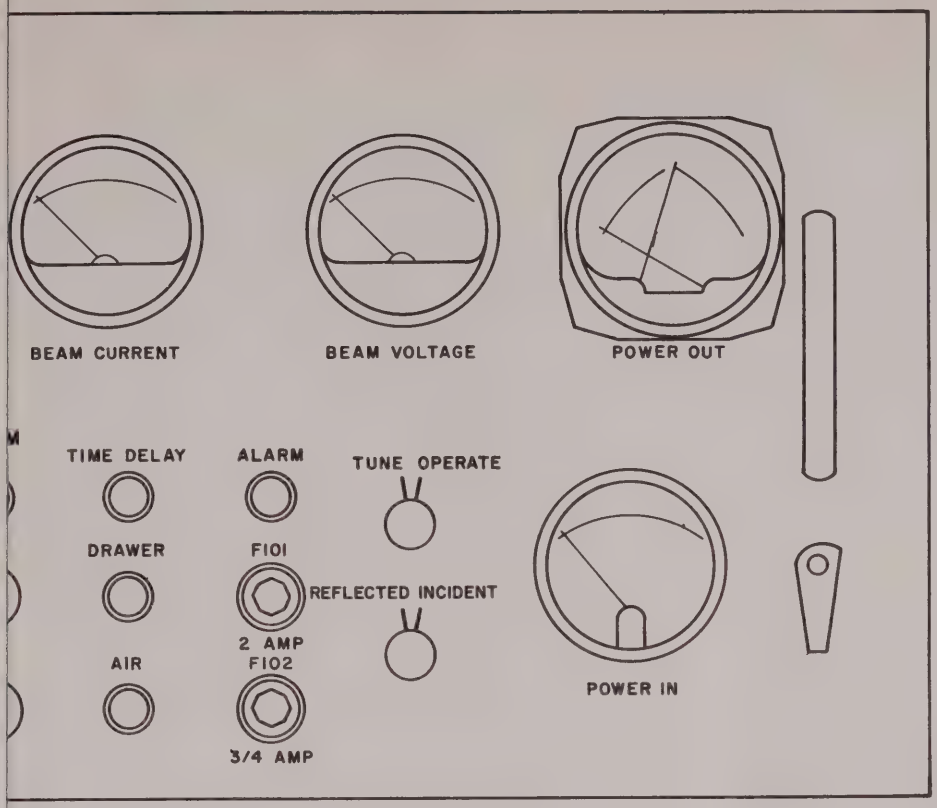
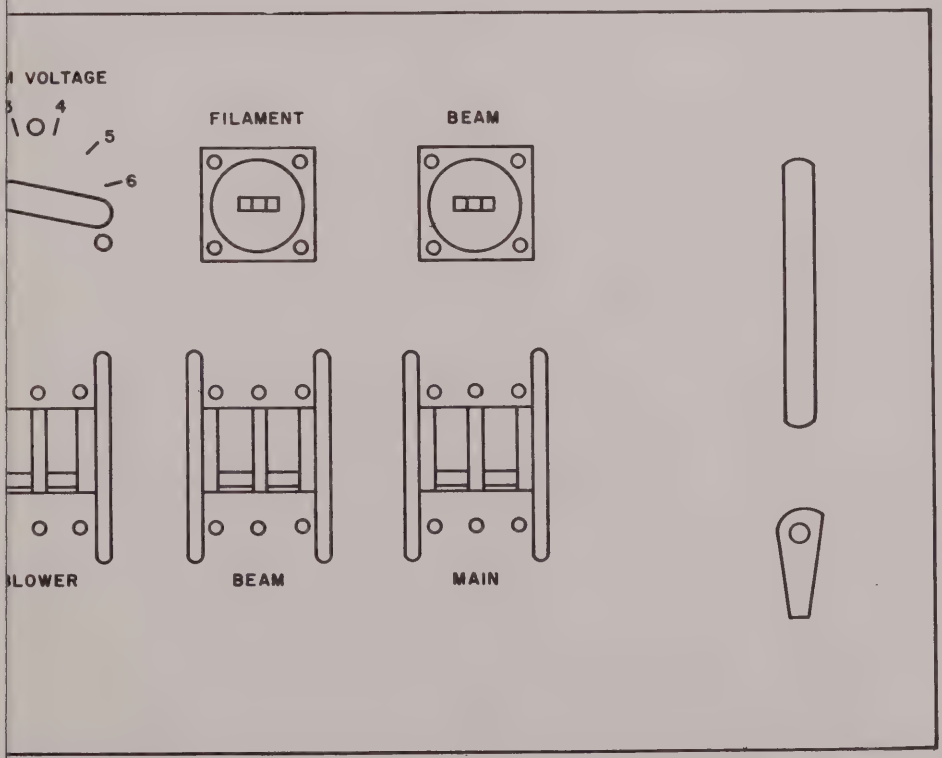


Figure 53. Receive converter, controls and indicators.





TM5820-469-10-30

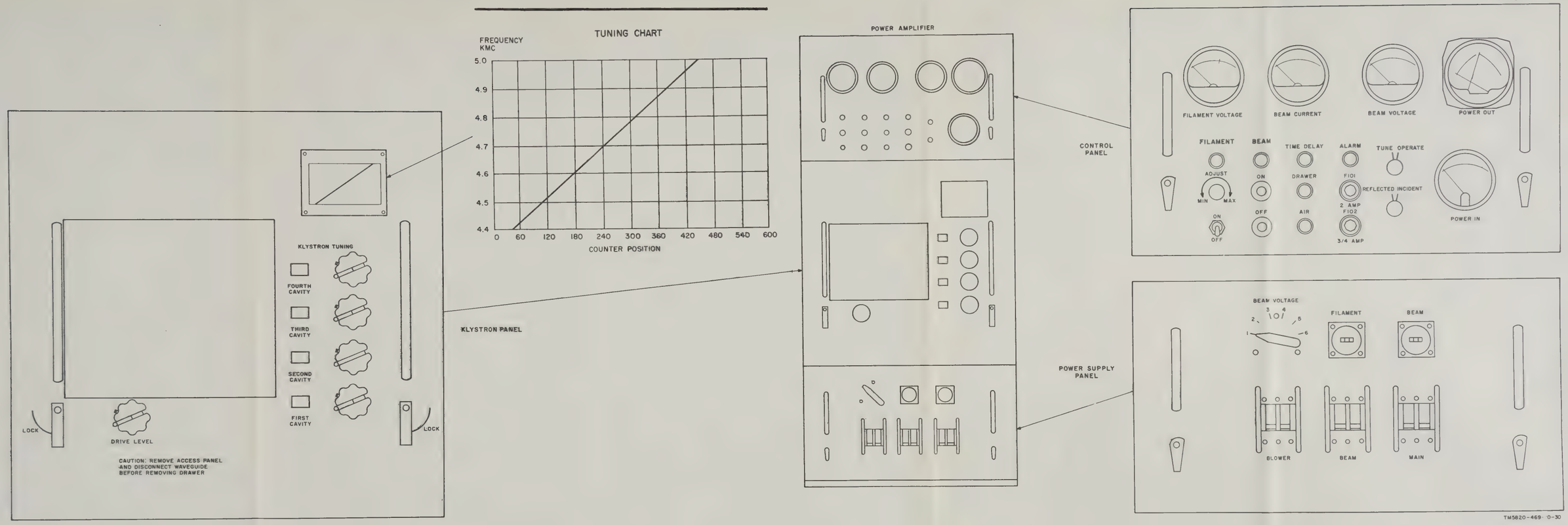
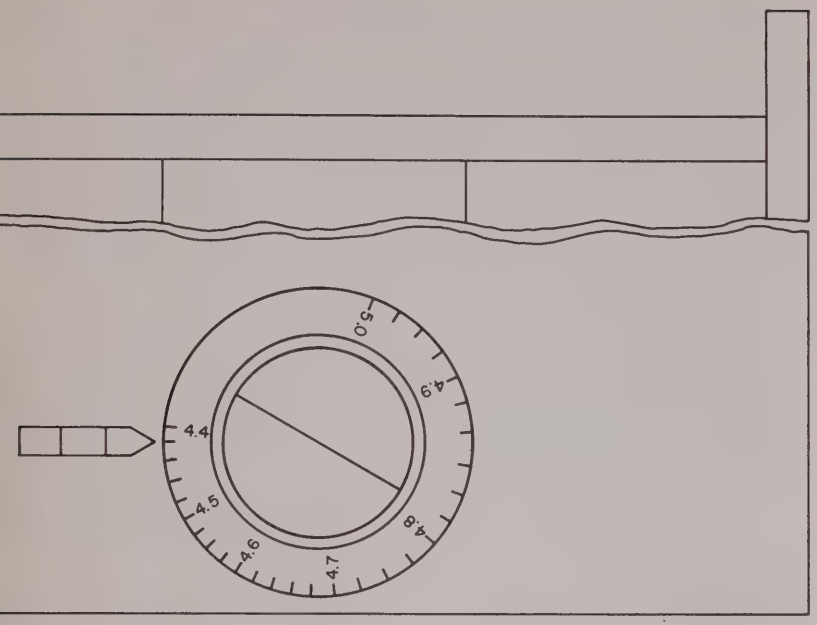
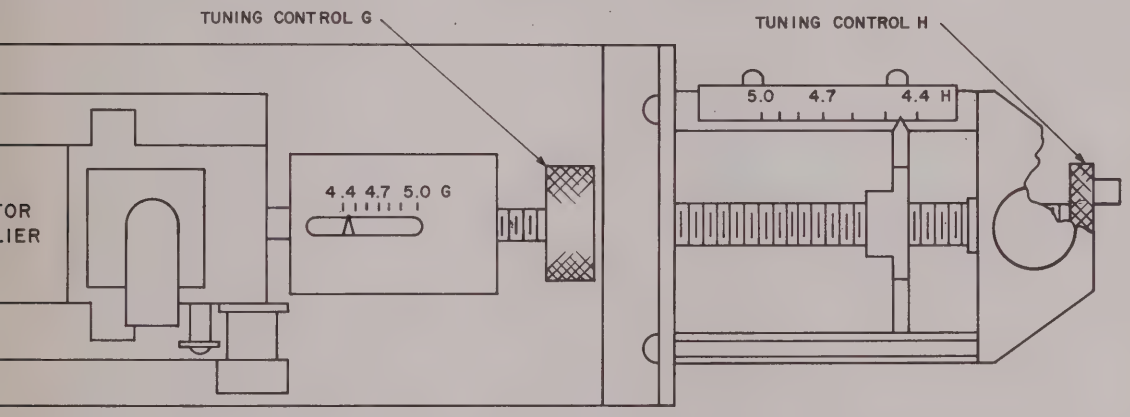
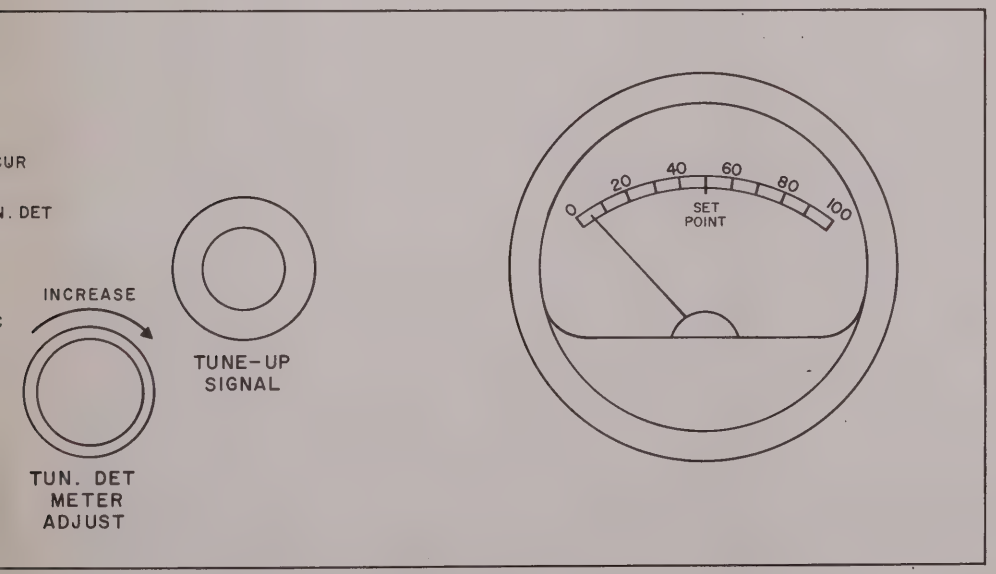


Figure 54. Power amplifier, controls and indicators.


5.0
4.9
4.4
4.8
4.5
4.6
4.7


TUNING CONTROL G
TUNING CONTROL H
5.0 4.7 4.4 H
4.4 4.7 5.0 G


INCREASE
TUNE-UP SIGNAL
TUN. DET METER ADJUST
0
20
40
60
80
100
SET POINT

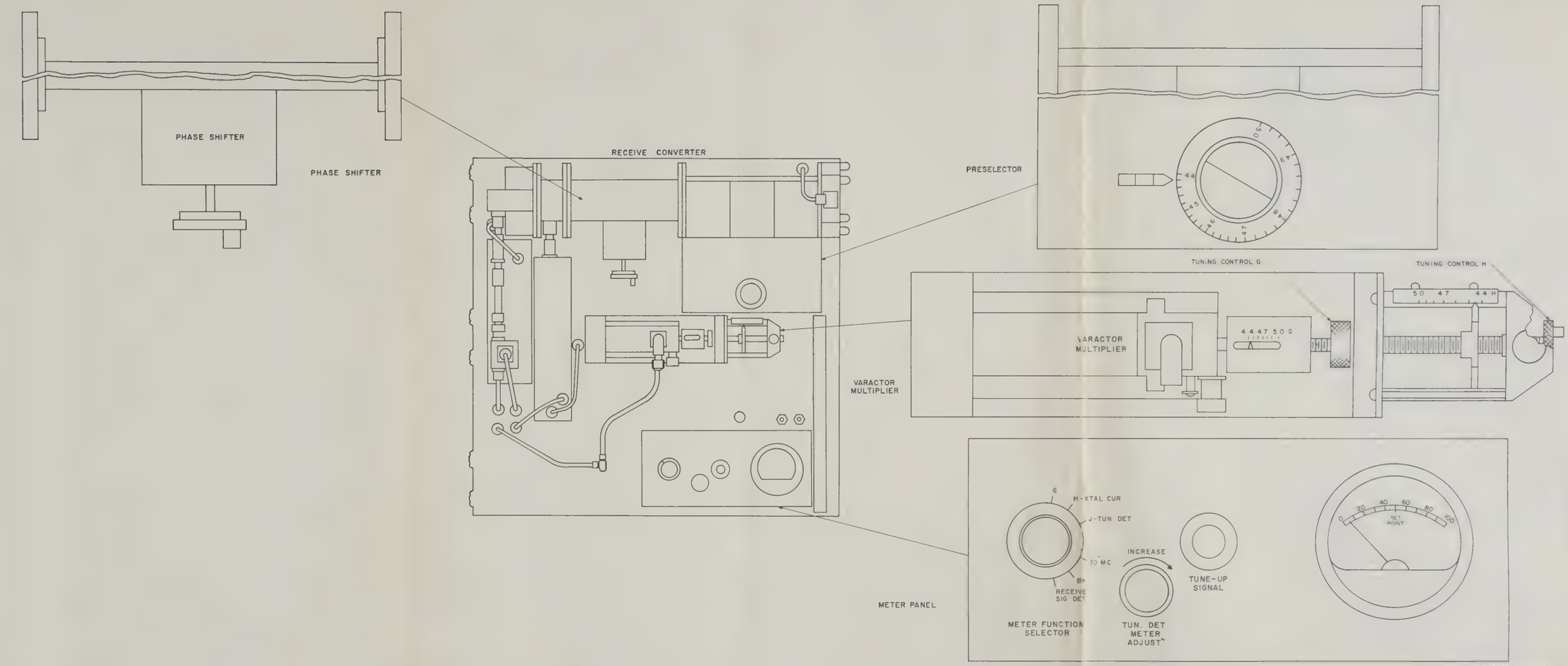


Figure 53.1. Receive Converter AM-6099/TRC-80A, controls and indicators, AN/TRC-80A.

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
H-103		Same as H-102	Clamp for C-203
H-104		Not used	
H-105	2Z2642.283 16-R-501081-112	RETAINER, CRYSTAL HOLDER: retains xtal holder to sw; aluminum, hot dichromate dip; "U" shape; 1⅞" lg x 1" wd x 7/16" h o/a; 2 mtg holes 0.156" diam, 1.562" c to c; ⅜" diam hole in ctr; Espey Part/Dwg #21.1489	Clamp for Y-101
H-106	2Z2642.312 16-C-300923-675	CLAMP: for holding cable Army-Navy Radio Frequency RG-59/U; ethyl cellulose plastic; natural yellow finish; 1 bolt hole 0.200" diam; 0.837" lg x ½" wd x 7/16" h; ¼" ID; Whitehead Metal Prod Type #742-4; Espey Part/Dwg #21.1599	Clamp for cable W-101
H-107	6R57400.1 41-W-2410	WRENCH: key type Allen setscrew; hex type 3/64" h x 5/64" across flats; cold forged steel, cad pl; 90 deg offset; for #8 Allen setscrew; Espey Part/Dwg #27.3403	Tool for knobs, shafts, etc.
H-108	6R57400-23 41-W-2410-4	WRENCH: key type Allen setscrew; hex type 7/64" across flats; 3⅜" lg x 11/32" h x 3/16" across flats; cold forged steel, cad pl; 90 deg offset; for #10 Allen setscrew; Espey Part/Dwg #27.3404	Tool for knobs, shafts, etc.
H-109	6L58016-3 43-W-543	WASHER, FLAT: ANA Type #AN3013D3; dural, anodized dip; round 1⅞" OD x 21/64" ID x 0.064" thk; u/w Lord shock mt; Espey Part/Dwg #27.3410	Washer for shock mount
H-110		Same as H-109	Washer for shock mount
H-111		Same as H-109	Washer for shock mount
H-112		Same as H-109	Washer for shock mount
H-113		Same as H-106	Clamp for cable W-101
H-114		Same as H-106	Clamp for cable W-101
H-115	2Z9052-111 16-S-692001-114	STRAP, RETAINING: retains cable to spkr in transit; olive drab cotton webbing; 10½" lg x 1" wd x ⅛" thk; double bar buckle 1½" lg x 1¼" wd, end clip 1" wd x ½" lg, both permanent bronze black finish; mildew and mp, allowance for shrinkage, all sewing lock stitched (6-8 stitches per inch); Espey Part/Dwg #27.3519	Retains cable to speaker in transit
H-116	6L3410-32-10 43-N-99500-205	NUT, ROUND: SS, passivate finish; #10-42 NC-2, ⅜" d; head 3/32" thk; ⅝" OD x 11/32" lg o/a, body ½" lg x ¼" diam; Espey Part/Dwg #35.1212	Fastens rail and spacer to cabinet
H-117		Same as H-116	Fastens rail and spacer to cabinet
H-118		Same as H-116	Fastens rail and spacer to cabinet
H-119		Same as H-116	Fastens rail and spacer to cabinet
H-120		Same as H-116	Fastens rail and spacer to cabinet
H-121		Same as H-116	Fastens rail and spacer to cabinet
H-122	6L3673-16 43-N-99500-219	NUT, LOCK: speed nut type; SS passivate finish; 0.187"-16 thd; 0.097" thk o/a, matl 0.025" thk; ½" wd x 1 1/16" lg, 2 holes 0.105" diam spaced 0.750" c to c; Espey Part/Dwg #35.1412	Front panel mount

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
H-123		Same as H-122	Front panel mount
H-124		Same as H-122	Front panel mount
H-125		Same as H-122	Front panel mount
H-126	6L70050 43-W-7221	WASHER, LOCK: nickel silver; round, 0.187" ID, $\frac{3}{8}$" OD, 0.020" thk matl; $\frac{1}{4}$" lg slit on ID, flared segment on ea side of slit; Espey Part/Dwg #35.1141	Retains captive screws in front panel
H-127		Same as H-126	Retains captive screws in front panel
H-128		Same as H-126	Retains captive screws in front panel
H-129		Same as H-126	Retains captive screws in front panel
H-130	6L54002-21 16-W-180001-225	WASHER, FLAT: neoprene per Navy Spec #33R14; round, $\frac{1}{8}$" ID, $\frac{3}{32}$" OD, $\frac{1}{4}$" thk; Espey Part/Dwg #35.1352	Cushions contact mounting plate in turret
H-131		Same as H-130	Same as H-130
H-132		Same as H-130	Same as H-130
H-133		Same as H-130	Same as H-130
H-134		Same as H-130	Same as H-130
H-135		Same as H-130	Same as H-130
H-136		Same as H-130	Same as H-130
H-137		Same as H-130	Same as H-130
H-138		Same as H-130	Same as H-130
H-139		Same as H-130	Same as H-130
H-140		Same as H-130	Same as H-130
H-141		Same as H-130	Same as H-130
H-142		Same as H-130	Same as H-130
H-143		Same as H-130	Same as H-130
H-144		Same as H-130	Same as H-130
H-145		Same as H-130	Same as H-130
H-146		Same as H-130	Same as H-130
H-147		Same as H-130	Same as H-130
H-148		Same as H-130	Same as H-130
H-149		Same as H-130	Same as H-130
H-150		Same as H-130	Same as H-130
H-151		Same as H-130	Same as H-130
H-152		Same as H-130	Same as H-130
H-153		Same as H-130	Same as H-130
H-154		Same as H-130	Same as H-130
H-155		Same as H-130	Same as H-130
H-156		Same as H-130	Same as H-130
H-157		Same as H-130	Same as H-130

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
H-158		Same as H-130	Same as H-130
H-159		Same as H-130	Same as H-130
H-160		Same as H-130	Same as H-130
H-161		Same as H-130	Same as H-130
H-162		Same as H-130	Same as H-130
H-163		Same as H-130	Same as H-130
H-164		Same as H-130	Same as H-130
H-165		Same as H-130	Same as H-130
H-166		Same as H-130	Same as H-130
H-167		Same as H-130	Same as H-130
H-168		Same as H-130	Same as H-130
H-169		Same as H-130	Same as H-130
H-170	6L54007-12 16-W-180001-224	WASHER, FLAT: neoprene; round, 3/32" ID, 11/16" OD, 1/16" thk; Espey Part/Dwg #35.1347	Cushions coils
H-171		Same as H-170	Same as H-170
H-172		Same as H-170	Same as H-170
H-173		Same as H-170	Same as H-170
H-174		Same as H-170	Same as H-170
H-175		Same as H-170	Same as H-170
H-176		Same as H-170	Same as H-170
H-177		Same as H-170	Same as H-170
H-178		Same as H-170	Same as H-170
H-179		Same as H-170	Same as H-170
H-180		Same as H-170	Same as H-170
H-181		Same as H-170	Same as H-170
H-182		Same as H-170	Same as H-170
H-183	6Q335-6	TOOL ALIGNMENT: brass body; 6" lg x 1" wd o/a; hex wrench 0.257" across flats cut in center of 1" diam knurled wheel at one end, opposite end plain; wheel rotates freely about axis perpendicular to handle; Espey Part/Dwg #27.4666	Aligns transformers mounted in turret assemblies
H-184 thru H-300		Not used	
H-301	2Z2642-446 17-C-781366-217	CLAMP: ANA Type #AN3057-6; cable; aluminum; black anodized, masked for continuity; 2 bolts employed; 1 1/16" lg x 1 3/8" diam o/a, 3/4"-20 int coupling thd; accommodates 1/2" diam cable; Amphenol Part #AN-3057-6 (6-8M)	Attached to J-303
I-101	2Z5952 GSK17-L-6297	LAMP, INCANDESCENT: 6-8 v, 0.15 amp, 1 w; bulb T-3 1/4 clear; 1 7/16" lg o/a; miniature bayonet base; C-2R fil, brown bead; burn any position; GE Type #47; Espey Part/Dwg #31.047	Dial light
I-102		Same as I-101	Dial light
J-101	2Z3021-148 17-C-73411-2793	CONNECTOR, RECEPTACLE: Navy Type #49120; 1 round concentric male cont; straight type; approx 7/8" diam x 1 11/16" lg o/a excluding term and mtg fl; cyl brass body, nickel pl; bakelite insert; mts in 3/4" diam chassis cutout by means of mtg fl and one 3/4"-20 thd tapped nut; concentric receptacle; Espey Part/Dwg #32.767; Navy Dwg #RA49F215	Antenna input connector

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
J-102	2Z8799-239 17-C-73108-5890	CONNECTOR, RECEPTACLE: Navy Type #49194, Sig C Socket SO-239; 1 round female coax cont; straight type; 1" lg x 1" wd x 1 1/16" h o/a; cyl die cast zinc body, silver pl w/ sq fl; mica filled bakelite insert; fl mtg w/ 4 mtg holes 0.125" diam on 3 3/32" x 3 3/32" mtg/c, 5/8"-24 NEF-2 thd coupling; Espey Part/Dwg #32.778; Navy Dwg #RE49F-167	Scanning output connector
J-103	2Z5534 17-J-39248-4418	JACK, TELEPHONE: JAN Type JJ-034 Navy Type #49025A, Sig C Jack JK-34; for 2 cond plug 0.25" diam, 1 3/32" lg u/w Sig C Type Plug PL-55; 0.993" lg to crook of contact x 11/16" max wd x 11/16" max h; J1 contact arrangement; includes hex mtg nut 7/16" across flats; and washer; mts in 5/8" diam mtg hole; has 0.093" diam locating pin; Spec #JAN-J-641	Phones connector
J-104	2Z7899-220 17-C-72610-5434	CONNECTOR, RECEPTACLE: Sig C Socket SO-220; round male cont, pol slot; straight type; 1 1/16" lg x 1 1/16" wd x 11/16" h less cont; cyl aluminum die cast shell, black anodize finish w/ sq mtg fl; melamine insert; 7/8"-20 coupling thd, mts by 4 holes 0.120" diam on 3 1/2" x 3 1/2" mtg/c; ANA Type #AN3102-14S-2P; Espey Part/Dwg #32.1054	Audio output connector
J-105	2Z3023-5 17-C-72604-1522	CONNECTOR, RECEPTACLE: 3 round male cont, pol slot; straight type; 1 1/16" lg x 1 1/16" wd x 11/16" h less cont; cyl aluminum die cast shell, black anodize finish w/ sq mtg fl; melamine insert; 7/8"-20 coupling thd, mts by 4 holes 0.120" diam on 3 1/2" x 3 1/2" mtg/c; ANA Type #AN3102-14S-7P; Espey Part/Dwg #32.789	Power input connector
J-106 thru J-300		Not used	
J-301	2Z3062-191 17-C-71120-4869	CONNECTOR, PLUG: Navy Type #49121A; 1 round concentric female cont; straight type; 11/16" diam x 2 11/16" lg o/a; cyl brass body, nickel pl; bakelite insert; 3/4" diam cable opening; concentric type plug; Espey Part/Dwg #32.768; Navy Dwg #RA49F216	Connects to J-101
J-302	2Z7226-259A 17-C-71414-2800	CONNECTOR, PLUG: Navy Type #49195, Sig C Plug PL-259A; 1 round male cont; straight type; 1 13/32" lg x 11/16" diam o/a; cyl silver pl brass body; mica filled bakelite insert; cable opening 1/2" diam, adj from 0.410" to 1/2" max; female coupling ring 5/8"-24 and tapered removable back shell which provides extra cable grip; Amphenol Part #83-1SPN; Espey Part/Dwg #32.1113	Connects to E-301
J-303	2Z3065-104 17-C-70334-5431	CONNECTOR, PLUG: 4 round female cont, pol; straight type; 1 11/16" lg x 1 3/16" OD max o/a; rated 20 amps 200 v DC, 150 v AC; cyl alum body w/ locking ring, black anodized, masked for continuity; molded melamine insert; 1/2" cable opening; coupling ring w/ 7/8-20 int thd on 1 end, 3/4"-20 ext thd on other end; ANA Type #AN3106A-14S-2S; Amphenol Part #AN3106A-14S-2S (6-8M); Spec Mil-C-5015	Spare audio output connector
L-101	3C1081-31S 16-C-76503-6489	COIL, RF: band E osc coil; single wnd, single layer solenoid; unshielded, mts in turret; 106 1/2 turns #36 AWG double formvar wire tapped at 15 1/2 turns; 1 13/32" lg x 11/16" OD less term; steatite form, core Pyroferric mix #PY2RA; form 1 13/32" lg x 11/16" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/8"-14 stud and nut; 4 radial turret type term, 2 near bottom active, 2 near top, 1 active, 1 dummy; marked L-101; coated Q-Max A-27; Espey Part/Dwg #2.528	Band E oscillator coil

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
L-102	3C1081-31T 16-C-76497-1181	COIL, RF: band D osc coil; single wnd, single layer solenoid; unshielded, mts in turret; 47½ turns #32 AWG single nylon E wire tapped at 12½ turns; 1 11/32" lg x 11/32" OD less term; steatite form, core Pyroferric mix #PY1KA; form 1 11/32" lg x 11/32" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 7/16"-14 stud and nut; 4 radial turret type term, 2 near bottom active, 1 near top, 1 active, 1 dummy; marked L-102; coated Q-Max A-27; Espey Part/Dwg #2.527	Band D oscillator coil
L-103	3C1081-31R 16-C-76423-8714	COIL, RF: band C osc coil; single wnd, single layer solenoid; unshielded, mts in turret; 23½ turns #28 AWG single silk E wire, tapped at 3½ turns; 1 21/32" lg x 11/32" OD less term; steatite form, core Pyroferric mix #PY14A; form 1 21/32" lg x 11/32" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 7/16"-14 stud and nut; 4 radial turret type term, 2 near bottom active, 2 near top, 1 active, 1 dummy; marked L-103; coated Q-max A-27; Espey Part/Dwg #2.526	Band C oscillator coil
L-104	3C1081-31U 16-C-76320-7008	COIL, RF: band B osc coil; single wnd, single layer solenoid; unshielded, mts in turret; 11 turns #27 AWG double Formvar wire tapped at 2½ turns; 1 31/32" lg X 11/32" OD less term; steatite form, core Pyroferric mix #PY13A; form 1 31/32" lg x 11/32" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 7/16"-14 stud and nut; 4 radial turret type term, 2 near bottom active, 2 near top, 1 active, 1 dummy; marked L-104; coated Q-Max A-27; Espey Part/Dwg #2.525	Band B oscillator coil
L-105	3C1081-31V 16-C-76231-5584	COIL, RF: band A osc coil; single wnd, single layer solenoid; unshielded, mts in turret; 4½ turns #16 AWG SD copper wire, silver plated tapped at 1¾ turns; 1 31/32" lg x 11/32" OD less term; steatite form, core Pyroferric mix #PY13A; form 1 31/32" lg x 11/32" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 7/16"-14 stud and nut; 4 radial turret type term, 2 near bottom active, 2 near top, 1 active, 1 dummy; marked L-105; coated Q-Max A27; Espey Part/Dwg #2.524	Band A oscillator coil
L-106	3C1084Z70-16 16-C-76504-9818	COIL, RF: 1st IF grid coil; 3 pie universal wnd; shielded; 240 turns 15/44 single nylon E wire; mts in can 2" lg x 1⅝" OD; steatite form, core Pyroferric mix #PY2RA; form 1 31/32" lg x 11/32" OD; adj iron core; scdr adj thru bottom and top of core; coil mts by integral 7/16"-14 stud and nut; 3 turret type term, 2 on bottom active, 1 on top dummy; marked L-106; shield Espey Part/Dwg #23.268 required but not furnished; coil coated Q-Max A-27; Espey Part/Dwg #16.292	455 Kc IF coil
L-107	3C1081-31W 16-C-76503-8201	COIL, RF: CW osc tuning coil; 3 pie universal wnd; shielded; 126 turns #36 AWG single nylon E wire, tapped at 42 turns; 1 31/32" lg x 11/32" diam less term; steatite form, core Pyroferric mix #PY2RA; form 1 31/32" lg x 11/32" OD; adj iron core; scdr adj thru top & bottom of core; coil mts by integral 7/16"-14 stud and nut; 3 turret type term, 1 on bottom, 2 on top; marked L-107; coil coated Q-Max A-27; shield Espey Part/Dwg #23.287 required but not furnished; Espey Part/Dwg #2.529	CW osc. tuning coil
L-108	3C554D 16-R-29238-6580	REACTOR: filter choke; 10 hy, 160 ma; 120 ohms DC resistance; 2000 v RMS test; HS metal case; 4½" h x 4½" lg x 3" wd; 4 blind nut mtg holes ¼"-20 on 3½" x 2¼" mtg/c; 2 solder lug term on bottom, spaced ⅝" c to c; Sherold #T-165; Espey Part/Dwg #16.251; Spec #JAN-T-27	Rectifier filter choke

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
L-109	3C1084Z70-25	COIL, RF: IF trap assembly; 1 pie universal wound; 156 turns 3/41 SNE wire; 1/4" lg x 1/16" diam less term.; coil wound on core slug, Espey Part/Dwg #27.4672, which in turn, is enclosed in 2 cup cores, Espey Part/Dwg #27.4671, both made of Pyroferric #PYIRA; mtd in bottom of glass melamine sleeve assembly; Espey Part/Dwg #27.4693; 2 solder lug term. on top; Espey Part/Dwg #2.688	IF trap
LS-201	6C42-171 17-L-91368-1947	SPEAKER, DYNAMIC: Army-Navy Dynamic Loudspeaker LS-171/U; 10" diam cone; PM field; 10 w input wattage; 6 ohm voice coil impedance; 10 1/8" OD x 5 1/4" d; 8 mtg holes 1/4" diam equally spaced on 9 1/8" circle; treated cone; Jensrad Type P 10-R Spec #S4388; Espey Part #11.088; BuShips Spec #CS1116	Speaker
N-101		Book, instruction	Instruction book
N-102		Same as N-101	Instruction book
N-103	6Z9463-4 16-W-63688-2639	WINDOW: for band selector dial; plexiglass; temp range minus 20°C to plus 50°C; rectangular plate; 2" lg x 1 3/8" wd x 1/16" h; 2 mtg holes #30 (0.128") drill csk 82° x 0.235" diam 1 1/2" c to c; Espey Part/Dwg #27.2422	Window for band selector dial
N-104	6Z9463-3 16-P-403561-120	PLATE INDEX: window for range dial; plexiglass; temp range minus 20°C to plus 50°C; rectangular plate; 6" lg x 3" wd x 1/16" h; 4 mtg holes 0.125" diam, csk 82 deg on 5" x 2" ctr; vert groove etched across ctr of plate, groove 0.01" wd x 0.005" d; Espey Part/Dwg #27.1956	Window for tuning dial
N-105	2Z3723-329 16-S-117101-622	DIAL: main tuning dial; aluminum alloy, USMC green E finish; marked for Bands A to E inclusive; vernier scale under Band E calibrated 0 to 100; disk shaped; 8" diam x 1/16" thk; 3 mtg holes pass #6 screen spaced 120 deg apart on 2" diam; Espey Part/Dwg #3.175	Main tuning dial
N-106	2Z8076-155 16-S-117101-399	SCALE: band dial scale; aluminum disc shaped cyl 5" diam x 1/16" thk alum; 1 scale marked "A, B, C, D, E," equally spaced; mts by 3 holes #23 csk 82 deg by 0.281" diam 120 deg apart on 1 1/4" diam circle; clear anodize finish, painted USMC green; Espey Part/Dwg #21.1026	Band dial scale
N-107	2Z3723-186 16-S-117101-395	SCALE: disc type; disc type 3 1/8" OD x 3/8" thk; 1 scale marked counter-clockwise every ten divisions, 0—90, 100 total divisions, every 5 marking longer 360 deg calibration; mts on 1/4" shaft by 2 set screws; Espey Part/Dwg #3.213	Vernier
N-108		Book, reference	Parts catalog
N-109		Same as N-108	Parts catalog
N-110	2Z8076-174 16-S-117101-564	SCALE: vernier dial scale; round, aluminum 0.064" thk, 3 1/8" OD, 5/8" ID, dial finish, USMC green enamel; 100 equally spaced divisions on outside edge of scale, marked counter-clockwise w/ 10, 20, 30, 40, 50, 60, 70, 80 and 90; 3 mtg holes 0.1065" diam spaced 120 deg apart on 1" diam, ctb 0.250" diam x 0.032" d; RSW; Espey Part/Dwg #3.174 (FOR REFERENCE ONLY)	Vernier dial scale
O-101	2Z4878-1069 16-G-431530-385	GEAR: spur type; 18-8 SS; pinion gear; straight teeth; 32 teeth; 32 pitch, 1" PD; 1.062" OD x 1/2" thk, bore diam 0.2525"; straight face; round hub 3/4" OD x 1/8" lg; 2 holes #8-32 tap 90 deg apart; Espey Part/Dwg #17.037	Pinion gear
O-102	2Z4878-1070 16-G-434048-311	GEAR: spur type; bearing bronze; turret gear; straight teeth; 160 teeth; 32 pitch, 5" pitch diam; 5.060" OD x 1 1/8" thk, bore diam 0.380"; straight face 1/16" thk; hub approx 1 1/16" diam x 5/8" thk; 2 tapped holes #8-32 NC-2 in hub; Espey Part/Dwg #17.036	Turret gear

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
O-103	2Z5180-26 16-H-900066-501	HUB: for detent mechanism; SS, passivated finish; cir w/ 1/4" x 90 deg groove in rim; 1" diam x 7/16" lg o/a undercut to 5/8" diam x 1/4" lg; mts on 0.254" diameter shaft, held by 2 set screws #10-32 NF-2, spaced 90 deg apart; Espey Part/Dwg #27.2148	Provides indexing for detent
O-104	2Z7255-51 17-A-25801-1012	PLUNGER: actuates muting sw; c/o Espey Part/Dwg #35.-1497 pin roller, #27.3645 roller, plunger, and #27.3643 plunger detent; 18.8 SS wire; 1" h x 7/16" wd x 3/8" lg; mts in slotted 1/8" diam x 5/8" d hole; Espey Part/Dwg #27.3639	Actuates muting switch
O-105	2Z8202-50 16-S-21226-1077	SHAFT: pinion for turret; SS, passivated finish; 1/4" diam x 3 7/8" lg; held in place by 2 Tru-Arc retainer rings; flatted one end for 2 1/2"; Espey Part/Dwg #27.2157	Pinion for turret
O-106	2Z8879-312 17-S-46768-3160	SPRING: flat type; spring for detent mechanism; 0.015" thk beryllium copper; 1 7/16" lg x 1/2" wd x 1/2" max h o/a; oval slot 1 1/2" lg x 3/32" wd on 1 end 0.144" diam hole 7/16" from other end; Espey Part/Dwg #27.2149	Spring for detent mechanism
O-107	2A3171.1-22 42-R-2049	RING, RETAINER: retains pinion shaft in turret; SS; cyl disk shaped w/ open end, cross sectional wd varies from 0.025" to 0.035" wd; contained within 0.41" circle, 0.025" thk; shaft size 1/4" diam; mts on shaft; Waldes Part #5100-25; Espey Part/Dwg #27.3223	Retains pinion shaft O-105 in turret
O-108		Same as O-107	Retains pinion shaft O-105 in turret
O-109	2Z8202-49 16-S-21226-1078	SHAFT: for turret; cold finished bar stock, silver pl; cyl shape; 15 7/16" lg x 0.375" diam; mts in front and rear brg castings; 0.247" diam undercut 1/8" from 1 end, other end has 2 flats 5/8" lg x 1/4" d 120 deg apart, 2 flat on ctr of shaft 12" lg x 1/4" d 144 deg apart; Espey Part/Dwg #27.2150	Shaft for turret
O-110	2Z736-65 16-R-502981-101	P/o A-103	
O-111	2Z736-66 16-R-502981-102	P/o A-104	
O-112	2Z4868-1092 17-G-159732-376	GASKET: for waterproofing case; gum rubber floating stock; single hole; rectangular, 26 1/16" lg x 22 1/16" wd x 3/8" thk; Espey Part #27.3409	Gasket for transit case
O-113	2Z8879-325 17-S-46756-8050	SPRING: helical extension type; for holding Allen wrench; #13 music wire; 1 3/8" lg x 1/8" ID x 0.187" OD excluding terminations; 44 turns; hook term 1/4" rad indexed 90 deg ea end; term bent on 1/4" rad 1 1/8" apart; Espey Part/Dwg #27.1404	For holding Allen wrench
O-114		Same as O-113	For holding Allen wrenches
O-115	2Z7391-5 16-S-469501-110	RAIL, GUIDE: for RH drawer slide; 18-8 SS; right angle shape; 16" lg x 7/8" wd x 7/16" h; 3 holes #2 drill, 82 deg csk in line 6.25" x 6.25" c to c; Espey Part/Dwg #27.2055 (FOR REFERENCE ONLY)	For RH drawer slide
O-116	2Z7391-6 16-S-469501-109	RAIL, GUIDE: for LH drawer slide; #14 (0.064") B&S GAGE 18-8 SS; right angle shape; 16" lg x 7/8" wd x 7/16" h; 3 holes #2 drill, 82 deg csk in line 6.25" x 6.25" c to c; Espey Part/Dwg #27.2052 (FOR REFERENCE ONLY)	For LH drawer slide
O-117	2Z4885-208 16-S-469501-107	GUIDE, DRAWER: for RH drawer slide; SS; channel shape; 16" lg x 1 1/8" wd x 7/16" h; 3 holes #2 drill csk 82 deg in line 6.25" x 6.25" c to c; Espey Part/Dwg #27.2056 (FOR REFERENCE ONLY)	For RH drawer slide

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
O-118	2Z4885-207 16-S-469501-108	GUIDE, DRAWER: for LH drawer slide; 18-8 SS; channel shape; 16" lg x 1⅛" wd x 7/16" h; 3 holes #2 drill, csk 82 deg in line 6.25" x 6.25" c to c; Espey Part/Dwg #27.2053 (FOR REFERENCE ONLY)	For LH drawer slide
O-119	2Z8405-114 17-M-75103-3701	MOUNT, VIBRATION: sq mtg; 20 lb load rating; 2¼" lg x 2¼" wd x 1" h o/a; rubber cushion 2.005" max diam x 1" thk, plate mtd; aluminum alloy ctr sleeve w/ 0.391" diam hole; 4 mtg holes 0.196" diam, on 1.75" sq mtg/c; wax treated; Lord #200 PL-20; ANA Type #AN8008-D13	Shock mount for receiver
O-120		Same as O-119	Shock mount for receiver
O-121	2Z8405-113 17-M-75138-3001	MOUNT, VIBRATION: sq mtg; 25 lb load rating; 2¼" lg x 2¼" wd x 1" h o/a; rubber cushion 2.005" max diam x 1" thk, plate mtd; aluminum alloy ctr sleeve w/ 0.391" diam hole; 4 mtg holes 0.196" diam, on 1.75" sq mtg/c; wax treated; Lord #200 PL-25; ANA Type #AN8008-D14	Shock mount for receiver
O-122		Same as O-121	Shock mount for receiver
O-123		Not used	
O-124		Not used	
O-125	2Z2935-92 16-C-600001-209	COLLAR, SPACING: spacer for tuning capacitor; steel cad pl and iridite; cyl; 0.305" lg x ⅜" OD; mts on shaft, 0.169" drill through, ctb 5/32" diam x 7/16" d; pass 200 hrs salt spray test; Espey Part/Dwg #27.3109	Spacer for tuning capacitor
O-126		Same as O-125	Spacer for tuning capacitor
O-127		Same as O-125	Spacer for tuning capacitor
O-128		Same as O-106	Spring for detent mechanism
O-129		Same as O-106	Spring for detent mechanism
O-130		Same as O-106	Spring for detent mechanism
O-131	2Z7091-567 16-P-401941-102	PLATE, DETENT: block for detent mechanism; brass, bright nickel pl; rectangular shape; 1⅜" lg x ⅝" wd x ⅝" h; 5 mtg holes tapped #6-32 NC-2, 4 on 0.375" x 0.750" mtg/c and 1 on right angle face; RSW, 1 hole 0.255" diam on ⅛" x ½" centers, ctb 0.437" diam x 5/32" d; Espey Part/Dwg #27.3638	Block for detent mechanism
O-132	2Z7780-153 17-R-250001-122	RETAINER, SPRING: CRS, cad pl; 3½" lg x ½" wd x 5/32" h o/a, 0.032" thk matl; 1 mtg hole, 0.180" diam on ¼" x ¼" centers; RSW; Espey Part/Dwg #27.3644	Spring retainer in detent mechanism
O-133	2Z1244-189 16-B-750001-485	BRACKET: holds muting sw; CR steel, cad pl and iridite finish; L shaped; 1 7/16" lg x 1½" wd x 5/32" h o/a; 2 mtg holes 0.156" diam ¾" c to c; RSW, 1 hole 0.117" diam and 1 elongated hole ⅛" wd x 7/16" lg spaced diagonally on 0.968" rad x 3½" centers from 0.117" diam holes; Espey Part/Dwg #21.1926	Holds muting switch
O-134	2Z558-61 17-B-51441-1001	BAR, LOCKING: fastens mute sw; brass, cad pl; rectangular; 1.155" lg x ¼" wd x 1/16" thk; 2 #4-40 mtg holes, 0.968" c to c; RSW; Espey Part/Dwg #35.1484	Fastens mute switch
O-135		Not used	
O-136	2Z7091-525 16-C-300143-171	PLATE, LOCK: for dial lock mechanism; c/o Espey Part/Dwg #21.1923 plate, and #35.1498 nut; brass, nickel pl finish; 2.62" diam x 5/32" thk; 4 mtg holes #4-40 equally spaced on a 2.405" diam; RSW; Espey Part/Dwg #35.1504	Part of dial lock mechanism

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
O-137	2Z8879A-9 17-S-46886-1016	SPRING ASSEMBLY: dial lock spring plate; c/o 1 Espey Part/Dwg #21.1924 plate, and 4 Espey Part/Dwg #21.1947 springs; nickel pl brass plate, spring temper beryllium copper springs; 1.966" lg x 1.966" wd x 0.314" h; 4 mtg holes 0.128" diam csk 0.230" diam x 82 deg, equally spaced on 0.625" diam, hole in ctr $\frac{1}{4}$" diam to pass shaft; plate RSW; Espey Part/Dwg #27.3695	Dial lock spring plate
O-138	2Z7091-524 16-C-300446-551	PLATE, LOCK: for dial lock mechanism; c/o Espey Part/Dwg #21.1922, plate and #27.3648, bushing; brass, nickle pl finish; 2¾" diam x $\frac{13}{32}$" thk; 2 mtg holes #10.24 spaced 180 deg apart on a 2" diam; RSW; Espey Part/Dwg #27.3693	Part of dial lock mechanism
O-139	2Z8304.282 16-S-37071-1002	SHIELD, TURRET: c/o 2 ea Espey Part/Dwg #23.299, plate and 1 ea Espey Part/Dwg #27.3649 insulator disk; brass plates, insulator melamine Type GMG; disk shaped; 4" diam x $\frac{1}{16}$" thk o/a; 10 mtg holes tapped #6-32, 5 on ea plate, centered on 5 equally spaced ears located on OD of plate; Espey Part/Dwg #23.300	Separates and provides mounting for Antenna turret shield
O-140	2B275-7 17-C-965001-302	CUSHION: cushions cont assem; neoprene, 0.040" thk; 1¼" lg x $\frac{13}{32}$" wd; 1 mtg hole $\frac{1}{16}$" diam, on $\frac{5}{8}$" x $\frac{5}{8}$" mtg/c; Espey Part/Dwg #35.1263	Cushions contact assembly
O-141		Same as O-140	Cushions contact assembly
O-142		Same as O-140	Cushions contact assembly
O-143		Same as O-140	Cushions contact assembly
O-144		Same as O-139	Separates and provides mounting for oscillator turret shield
R-101	3Z7020-6 16-R-89761-3150	RESISTOR, VARIABLE: WW; 20 ohms p/m 10%; 2 w at 20 to 40 deg C; 3 solder lug term; 1¼" diam x $\frac{3}{16}$" d, encl case, $\frac{31}{32}$" thk o/a; flatted metal shaft, phenolic body w/ metal case, ¼" diam x ⅞" lg; JAN "A" taper; ins from case, w/ off position; normal torque, w/o shaft lock; mtg bushing ⅜" lg w/ ⅜"-32, non-turn device on 0.531" R at 9 o'clock; SPST sw, normally open, operates on clockwise rotation, 3 amps at 117 VRMS, 2 term; IRC Type #W; Espey Part/Dwg #9.193	Current control for I-101 and I-102
R-102	3RC20BF474K 16-R-50822-0811	RESISTOR, FIXED: comp; JAN Type #RC20BF474K; 0.47 megohm p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Espey Part/Dwg #R447-35; Spec #JAN-R-11	Grid leak for V-101
R-103	3RC20BF680J 16-R-49490-0431	RESISTOR, FIXED: Navy Type #63355-680; comp; JAN Type #RC20BF680J; 68 ohms p/m 5%; ½ w; F characteristic; 0.406" lg x 0.175" diam; in, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Espey Part/Dwg #RO68-34; Spec #JAN-R-11	Cathode bias for 1st RF amplifier V-101
R-104	3RC20BF472K 16-R-50129-0811	RESISTOR, FIXED: comp; JAN Type #RC20BF472K; 4700 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Espey Part/Dwg #R247-35; Spec #JAN-R-11	Screen coupling for 1st RF amplifier V-101
R-105		Same as R-104	Plate decoupling for 1st RF amplifier V-101

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
R-106	3Z5995-74	RESISTOR, fixed: comp; 5.0 ohms ± 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire lead term; Espey part #RO50-35; Stackpole RC10 type.	Isolating resistor for primary of 1st RF transformer T-110
R-107	3RC20BF511J 16-R-49786-0431	RESISTOR, FIXED: comp; JAN Type #RC20BF511J; 510 ohms p/m 5%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21AWG, 1½ lg; Espey Part/Dwg #R151-34; Spec #JAN-R-11	Isolating resistor for primary of 1st RF transformer T-106
R-108	3RC20BF102K 16-R-49922-11	RESISTOR, fixed: comp; JAN type RC20BF102K; 1000 ohms p/m 10%; ½ w; F characteristic; 0.406 in. lg x 0.175 in. diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½ in. lg; Spec JAN-R-11	Isolating resistor for primary of 1st RF transformer T-107
R-109	3RC20BF152K 16-R-49967-0811	RESISTOR, FIXED: comp; JAN Type #RC20BF152K; 1500 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Espey Part/Dwg #R215-35; Spec #JAN-R-11 Amendment #2	Isolating resistor for primary of 1st RF transformer T-108
R-110		Not used	
R-111		Same as R-102	Grid resistor for V-102
R-112		Same as R-103	Cathode bias for V-102
R-113		Same as R-104	Screen decoupling for V-102
R-114		Same as R-104	Plate supply decoupling for V-102
R-115	3RC20BF100K 16-R-49238-811	RESISTOR, FIXED: comp; JAN Type #RC20BF100K; 10 ohm p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Spec #JAN-R-11	Isolating resistor for primary of T-115
R-116		Same as R-107	Isolating resistor for primary of T-111
R-117		Same as R-108	Isolating resistor for primary of T-112
R-118		Same as R-109	Isolating resistor for primary of T-113
R-119		Not used	
R-120	3RC20BF681K 16-R-49841-811	RESISTOR, FIXED: comp; JAN Type #RC20BF681K; 680 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam o/a; ins, RSW and humidity; 2 axial wire leads #21-AWG, 1½" lg; Spec #JAN-R-11	Cathode bias resistor for mixer V-103 bands E and D
R-121	3RC20BF121J 16-R-49597-431	RESISTOR, FIXED: comp; JAN Type #RC20BF121J; 120 ohms p/m 5%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads; #21AWG, 1½" lg; Spec #JAN-R-11	Cathode bias resistor for V-110
R-122	3RC20BF154K 16-R-50678-0811	RESISTOR, FIXED: Navy Type #63360-154; comp; JAN Type #RC20BF154K; 0.15 megohm p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads, #21 AWG, 1½" lg; Espey Part/Dwg #R415-35; Spec #JAN-R-11	A.G.C. decoupling resistor
R-123	3RC42BF472K 16-R-50130-711	RESISTOR, FIXED: comp; JAN Type #RC41BF472K; 4700 ohms p/m 10%; 2 w; F characteristic; 0.750" lg x 0.370" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Spec #JAN-R-11	RF and IF screen dropping resistor
R-124		Not used	

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
R-125	3RC42BF223K 16-R-50373-421	RESISTOR, FIXED: comp; JAN Type #RC42BF223K; 22,000 ohms p/m 10%; 2 w; F characteristic; 0.750" lg x 0.370" diam max body dimen; ins, RSW and humidity; 2 axial wire leads #19 AWG, 1½" lg; Espey Part/Dwg #R322-40; Spec #JAN-R-11-3	Series screen dropping resistor for V-103
R-126	3RC20BF223K 16-R-50372-0811	RESISTOR, FIXED: comp; JAN Type #RC20BF223K; 22,000 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Espey Part/Dwg #R332-35; Spec #JAN-R-11	Load resistor for injector grid of V-103
R-127		Same as R-126	Grid load resistor for V-104
R-128		Not used	
R-129		Not used	
R-130		Same as R-126	Plate supply filter for V-110
R-131		Same as R-104	Decoupling filter for V-103 plate supply
R-132	3RW32000	RESISTOR, FIXED: WW; JAN Type #RW36E283; 28,000 ohms p/m 5%; 16 w, 125°C max oper temp; 4" lg x 1⅛" max diam excluding term; RSW, 2 tab term ⅛" from ends of tube, 11" wd x ¾" lg x 0.016" thk min; Espey part/dwg #14.467; Spec #JAN-R-26A	Dropping resistor for RF tubes cathode voltage supply
R-133	3Z7320-58	RESISTOR, VARIABLE: WW; 2,000 ohms p/m 10%; 3 w at 20 to 40°C; 3 solder lug term; 1¹³/₃₂" diam x ³³/₆₄" d, end case; flatted metal shaft, phenolic body w/ metal case, ¼" diam x ⅞" lg; Clarostat taper "F"; ins from case, w/ off position; normal torque, w/o shaft lock; mtg bushing ⅜" lg w/ ⅜"-32 thd, non-turn device on 0.531" rad at 9 o'clock; Espey Part/Dwg #9.302	RF gain control rheostat
R-134	3RC20BF224K 16-R-50714-0811	RESISTOR, FIXED: comp; JAN Type #RC20BF224K; 0.22 megohm p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Espey Part/Dwg #R442-35; Spec #JAN-R-11	Grid load for V-105
R-135		Same as R-107	Cathode bias for V-105
R-136		Same as R-103	Terminating resistor for scanning output line
R-137		Same as R-103	Selectivity control position 3
R-138	3RC20BF510J 16-R-49444-431	RESISTOR, FIXED: comp; JAN Type #RC20BF510J; 51 ohms p/m 5%; ½ w; F characteristic; 0.406" lg x 0.175" o/a diam; ins, RSW and humidity; 2 axial wire lead term; Spec #JAN-R-11-3	Selectivity control position 4
R-139	3RC20BF101K 16-R-49580-811	RESISTOR, FIXED: comp; JAN Type #RC20BF101K; 100 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" o/a diam; ins, RSW and humidity; 2 axial wire lead term #21 AWG, 1½" lg; Spec #JAN-R-11	Selectivity control position 5
R-140		Same as R-107	Selectivity control maximum position
R-141		Same as R-126	AGC decoupling resistor for L-106

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
R-142	3RC20BF391K 16-R-49733-0811	RESISTOR, FIXED: comp; JAN Type #RC20BF391K; 390 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Spec #JAN-R-11	Cathode resistor for V-106
R-143		Same as R-104	Screen supply decoupling resistor for V-106
R-144		Same as R-104	Plate supply decoupling resistor for V-106
R-145		Same as R-142	Cathode bias for V-107
R-146		Same as R-125	Screen dropping resistor for V-107
R-147		Same as R-123	Bleeder resistor for V-107
R-148	3RC20BF103K 16-R-50282-811	RESISTOR, FIXED: comp; JAN Type #RC20BF103K; 10,000 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire lead term; Spec #JAN-R-11-3	CWO plate supply decoupling for V-108
R-149	3RC20BF104K 16-R-50633-0811	RESISTOR, FIXED: comp; JAN Type #RC20BF104K; 0.10 megohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Espey Part/Dwg #R410-35; Spec #JAN-R-11 and Amend #2	Plate load resistor for V-108
R-150		Same as R-149	Screen dropping resistor for V-108
R-151	3RC20BF473K 16-R-50480-0811	RESISTOR, FIXED: comp; JAN Type #RC20BF473K; 47,000 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Espey Part/Dwg #R447-35; Spec #JAN-R-11	Grid load resistor for V-108
R-152		Same as R-104	Plate supply decoupling for V-107
R-153	3RC20BF105K 16-R-50975-811	RESISTOR, FIXED: comp; JAN Type #RC20BF105K; 1 meg p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam ins, RSW and humidity; 2 axial wire lead term #21 AWG, 1½" lg; Spec #JAN-R-11	AGC decoupling resistor
R-154		Same as R-153	V-109 cathode voltage feed
R-155	3RC20BF104J 16-R-50632-431	RESISTOR, FIXED: comp; JAN Type #RC20BF104J; 100,000 ohms p/m 5%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire lead term #21 AWG, 1½" lg; Spec #JAN-R-11	Part of diode load
R-156	3RC20BF683J 16-R-50551-431	RESISTOR, FIXED: comp; JAN Type #RC20BF683J; 68,000 ohms p/m 5%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Spec #JAN-R-11	Part of diode load
R-157	3RC20BF824K 16-R-50930-811	RESISTOR, FIXED: comp; JAN Type #RC20BF824K; 820,000 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire lead term; Spec #JAN-R-11-3	Noise limiting

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
R-158	3Z7498-50.137 16-R-88181-8682	RESISTOR, VARIABLE: comp; 0.5 meg p/m 20%; ½ w; 3 solder lug term; plastic w/ metal cover 1⅛" diam x 0.491" d; flatted metal shaft ¼" diam, 2⅛" lg FMS; resistance taper "C"; ins from case w/o off pos; normal torque, w/o shaft lock; mts by ⅜"-32 bushing; ⅜" lg non turn device on 4¼" rad at 9 o'clock; CTS Type 35; Espey Part/Dwg #9.213	AF gain control Potentiometer
R-159		Same as R-149	Plate load for V-110
R-160		Same as R-149	Plate load for V-110
R-161	3RC20BF222K 16-R-50012-811	RESISTOR, fixed: comp; JAN type RC20BF222K; 2200 ohms p/m 10%; ½ w; F characteristic; 0.406 in. lg x 0.175 in. diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½ in. lg; Spec JAN-R-11	Cathode resistor for V-110
R-162		Not used	
R-163		Not used	
R-164	3Z7498-25.85 16-R-88081-8700	RESISTOR, VARIABLE: comp; 0.25 meg p/m 20%; ½ w; 3 solder lug term; encl metal case 1⅛" diam x 0.491" d, encl case; flatted metal shaft ¼" diam, ⅛" lg FMS; resistance taper "C"; ins from case, w/o off pos; normal torque, w/o shaft lock; mts by ⅜"-32 bushing ⅜" lg, non-turn device on 4¼" rad at 9 o'clock; Espey Part/Dwg #9.227	Tone control
R-165		Same as R-134	Grid load for V-111
R-166		Same as R-134	Grid load for V-112
R-167		Same as R-134	Paraphase network resistor
R-168		Same as R-161	Inverse feedback network
R-169		Same as R-161	Inverse feedback network
R-170	3RW20135 16-R-65753-8750	RESISTOR, FIXED: WW; JAN Type #RW20G201; 200 ohms p/m 5%; 15 w; 1⅞" OD excluding term x 1¼" lg; 2 tab term; stack mtg, 2 holes 0.196" diam on 2" mtg/c; Spec #JAN-R-26A	Cathode bias for V-111, V-112
R-171	3RC20BF561J 16-R-49804-431	RESISTOR, FIXED: comp; JAN Type #RC20BF561J; 560 ohms p/m 5%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire lead term #21 AWG, 1½" lg; Espey Part/Dwg #R156-34; Spec #JAN-R-11	Headphones matching resistor
R-172		Same as R-161	Series plate decoupling resistor for V-104
R-173	3RW27306 16-R-66167-8970	RESISTOR, FIXED: WW; JAN Type #RW32G312; 3100 ohms p/m 5%; ½ w; 275°C max oper temp; 2" lg x 4¼" max diam; humidity resistant; 2 tab term ⅛" from ends of tube x 3¼" lg x 4¼" min wd x 0.016" min thk; Espey Part #14.470; Spec #JAN-26A	Plate voltage feed for V-114
R-174	3RC20BF390K 16-R-49391-811	RESISTOR, FIXED: comp; JAN Type #RC20BF390K; 39 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity, 2 axial wire leads #21 AWG, 1½" lg; Spec #JAN-R-11	Series resistor for C-198
R-175		Not used	
R-176	3RC20BF822K 16-R-50237-811	RESISTOR, FIXED: comp; JAN Type #RC20BF822K; 8200 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Spec #JAN-R-11	Counter modulation resistor in cathode circuit of V-109

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
R-177		Same as R-155	AGC delay voltage supply
R-178	3RC20BF122K 16-R-49940-811	RESISTOR, FIXED: comp; JAN Type #RC20BF122K; 1200 ohms p/m 10%; ½ w; F characteristic; 0.406" lg x 0.175" diam, ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Spec #JAN-R-11	Cathode resistor for V-115
R-179		Same as R-102	Plate resistor for V-115
R-180		Same as R-102	Series grid resistors for V-116
R-181		Same as R-102	Grid load resistor for V-116
R-182	3RC20BF302J 16-R-50047-431	RESISTOR, FIXED: comp; JAN Type #RC20BF302J; 3000 ohms p/m 5%; ½ w; F characteristic; 0.406" lg x 0.175" diam; ins, RSW and humidity; 2 axial wire leads #21 AWG, 1½" lg; Spec #JAN-R-11	Cathode bias resistor for V-116
R-183		Same as R-134	Grid load resistor for V-110
R-184		Same as R-134	Plate load resistor for V-116
R-185		Same as R-103	Selectivity control BROAD position
S-101	3Z9825-62.490 17-S-59672-7853	SWITCH, ROTARY: 1 pole, 2 position, 2 throws; 1 sect; solid silver alloy cont; ceramic plates silicone impr; approx $\frac{25}{64}$" lg x 1⅞" h x 1⅝" wd; non-shorting type cont; solder lug term; mts by bushing ⅜"-32 x ¼" lg, ¼" diam shaft x 2¼" lg FMS; slot $\frac{1}{16}$" wd x ⅛" d in end of shaft, 200 hr salt spray test; Oak Type HC; Espey Part/Dwg #12.196	Antenna input impedance selector
S-102		Not used	
S-103		Not used	
S-104	3Z9825-62.488 17-S-61607-6012	SWITCH, ROTARY: 2 pole, 6 position, 6 throws; 1 sect; solid silver alloy cont; ceramic body silicone impr; 1$\frac{13}{16}$" lg x 1⅞" h x 1⅝" wd; shorting cont; solder lug term; mts by ⅜"-32 bushing ¼" lg, shaft ¼" diam x 6$\frac{13}{32}$" lg FMS, ½" lg flat; 200 hr salt spray test; Oak Type #HC; Espey Part/Dwg #12.181	Selectivity control
S-105	3Z9825-62.489 17-S-61163-5331	SWITCH, ROTARY: first sect, 2 pole 3 position, second section SPST snapswitch closed in max clockwise position only; 2 sect; rated 3 amp, 125v; solid silver alloy cont; ceramic plates, silicone impr; 1$\frac{13}{16}$" lg x 1⅞" h x 1⅝" wd; non-shorting type cont; locking action; solder lug term; mts by ⅜-32 bushing ⅜" lg, ¼" diam shaft x ⅞" lg w/ ½" flat on end; 200 hr salt spray test; Oak type HC; Espey Part/Dwg #12.180	Control switch
S-106	3Z9825-62.643 17-S-59674-9710	SWITCH, ROTARY: 1 pole, 2 position, 2 throws; 1 sect; solid silver alloy cont; ceramic body, silicone impr; 1⅝" wd x 1⅞" h x ¾" d; shorting type cont; solder lug term; ⅜"-32 x ⅜" lg mtg bushing, shaft ⅞" lg FMS x ¼" diam flatted ½"; RSW, furnished w/ mtg hdw; Oak Type HC; Espey Part/Dwg #12.231	Limiter switch
S-107	3Z9823-15.28 17-S-69085-2701	SWITCH, SENSITIVE: SPDT; 10 amp 115 v AC; molded phenolic case; case 1.094" lg x 0.625" wd x 0.406" h less term and actuating plunger; plunger pin 0.165" lg x 0.110" wd x 0.110" h; 14 oz max oper pressure; 0.020" max movement differential 0.046" max pretravel; 0.031" min overtravel; momentary action; screw term; 1 mtg hole 0.114" diam, and 1 mtg hole elongated 0.126" diam x 0.114" wd, spaced diagonally on 0.875" x 0.406" mtg/c; Micro Sw #V3-1; Espey Part/Dwg #12.206; Army-Navy Type #AN3234-1	Muting switch

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
S-108	3Z9825-62.491 17-S-59795-9647	SWITCH, ROTARY: 1 sect, 1 pole 3 pos, other sect SPST, snap sw normally open, switch pos, #1 position Sect 1 open Sect 2 (sw) open, #2 position Sect 1 open Sect 2 (sw) closed, #3 position Sect 1 closed Sect 2 (sw) closed; 1 sect; snap sw rated 3 amp 125 v; solid silver alloy cont; ceramic plates silicone impr; 1½" lg x 1⅞" h x 1⅝" wd; non-shorting type cont; solder lug term; mts by ⅜"-32 thd bushing ¼" lg, shaft ¼" diam x 2" lg FMS, flatted ½" lg; 200 hr salt spray test; Oak Type HC; Espey Part/Dwg #12.179	Power switch
S-109		c/o E-141 and E-163	For changing bands
S-110		c/o E-141 and E-163	For changing bands
T-101	3C1084Z70-23 16-C-76505-6701	COIL, RF: ant trans band E; pri universal 1 pie, secd universal 2 pie; unshielded, mts in turret; pri 177½ turns #38 AWG wire, secd 110 total turns 7/41 pri tapped at 151 turns; 1⅛" lg x ⅝" OD less term; steatite form, core Pyroferric mix #PY2RA; form 1⅛" lg x ⅝" OD; adj iron core; scdr adj thru bottom of core, hex on other end; mts by integral 5/16"-14 stud and nut; 4 radial turret type term, 2 near bottom, 2 near top; marked T-101; coated Q-Max A-27; Espey Part/Dwg #15.071	Antenna transformer band E
T-102	3C1084Z70-24 16-C-76503-3839	COIL, RF: ant transf band D; pri universal 1 pie, secd universal 2 pie; unshielded, mts in turret; pri 34½ turns #36 AWG wire tapped at 11½ turns, secd 45 turns; 1⅛" lg x ⅝" OD less term; steatite form, core Pyroferric mix #PY1RA; form 1⅛" lg x ⅝" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 7/16"-14 stud and nut; 4 radial turret type term, 2 near bottom, 2 near top; marked T-102; coated Q-Max A-27; Espey Part/Dwg #15.070	Antenna transformer band D
T-103	3C1084Z70-17 16-C-76472-3251	COIL, RF: ant transf band C; pri and secd single layer solenoid; unshielded, mts in turret; pri 10½ turns #36 AWG wire, tapped at 2½ turns, secd 25 turns #28 AWG wire; 1⅛" lg x ⅝" OD less term; steatite form, core Pyroferric mix #PY14A; form 1⅛" lg x ⅝" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/16"-14 stud and nut; 4 radial turret type term, 2 near bottom, 2 near top, marked T-103; coated Q-Max A-27; Espey Part/Dwg #15.069	Antenna transformer band C
T-104	2Z9629-396 16-C-76423-2580	COIL, RF: ant transf band B; pri and secd single layer solenoid; unshielded, mts in turret; pri 10½ turns #36 AWG wire, tapped at 6½ turns, sec 11 turns #27 AWG wire; 1⅛" lg x ⅝" OD less term; steatite form, core Pyroferric mix #PY13A; form 1⅛" lg x ⅝" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/16"-14 stud and nut; 4 radial turret type term, 2 near bottom, 2 near top; marked T-104; coated Q-Max A-27; Espey Part/Dwg #15.068	Antenna transformer band B
T-105	3C1084Z70-18 16-C-76295-5116	COIL, RF: ant transf band A; pri and secd single layer solenoid; unshielded, mts in turret; pri 5½ turns #36 AWG wire, tapped at 3½ turns, secd 5 turns #16 silver pl copper wire; 1⅛" lg x ⅝" OD less term; steatite form core Pyroferric mix #PY13A; form 1⅛" lg x ⅝" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/16"-14 stud and nut; 4 radial turret type term, 2 near bottom, 2 near top; marked T-105; coated Q-Max A-27; Espey Part/Dwg #15.067	Antenna transformer band A

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
T-106	2Z9629-397 17-T-82467-2821	COIL, RF: 1st RF transf Band E; pri universal 1 pie, secd universal 2 pie; unshielded, mts in turret; pri 135 turns #38 AWG wire, secd 104 turns #38 AWG wire; 1 3/32" lg x 1/4" OD less term; steatite form, core Pyroferric mix #PY2RA; form 1 3/32" lg x 1/4" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/16"-14 stud and nut; 4 radial turret type term, 2 near bottom, 2 near top; marked T-106; coated Q-Max A-27; Espey Part/Dwg #15.076	1st RF transformer band E
T-107	3C1084Z70-19 17-T-82449-3426	COIL, RF: 1st RF transf band D; pri universal 1 pie, secd universal 2 pie; unshielded, mts in turret; pri 105 turns #38 AWG wire, secd 44 turns #38 AWG wire; 1 3/32" lg x 1/4" OD less term; steatite form, core Pyroferric #PY1RA; form 1 3/32" lg x 1/4" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/16"-14 stud and nut; 4 radial turret type term, 2 near bottom, 2 near top; marked T-107; coated Q-Max A-27; Espey Part/Dwg #15.075	1st RF transformer band D
T-108	2Z9629-394 17-T-82442-1161	COIL, RF: 1st RF transf band C; pri and secd single layer solenoid; unshielded, mts in turret; pri 20 turns #38 AWG wire, secd 25 turns #28 AWG wire; 1 3/32" lg x 1/4" OD less term; steatite form, core Pyroferric #PY14A; form 1 3/32" lg x 1/4" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/16"-14 stud and nut; 4 radial turret type term, 2 near bottom active, 2 near top, 1 active, 1 dummy; marked T-108; coated Q-Max A-27; Espey Part/Dwg #15.074	1st RF transformer band C
T-109	3C1084Z70-20 17-T-82439-6521	COIL, RF: 1st RF transf band B; pri and secd single layer solenoid; unshielded, mts in turret; pri 50 turns #36 AWG wire, secd 12 turns #27 AWG wire; 1 3/32" lg x 1/4" OD less term; steatite form, core Pyroferric #PY13A; form 1 3/32" lg x 1/4" OD; adj iron core; scdr adj thru bottom of core; mts by integral 3/16"-14 stud and nut; 4 turret type term, 2 near top, 2 near bottom; marked T-109; coated Q-Max A-27; Espey Part/Dwg #15.073	1st RF transformer band B
T-110	3C1084Z70-22 17-T-82437-5681	COIL, RF: 1st RF transf band A; pri and secd single layer solenoid; unshielded, mts in turret; pri universal pie 25 turns #38 AWG wire, secd 5 turns #16 AWG copper, silver pl wire; 1 3/32" lg x 1/4" OD less term; steatite form, core Pyroferric #PY13A; form 1 3/32" lg x 1/4" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/16"-14 stud and nut; 4 radial turret type term, 2 near top, 2 near bottom; marked T-110; coated Q-Max A-27; Espey Part/Dwg #15.072	1st RF transformer band A
T-111	2Z9629-395 17-T-82467-2831	COIL, RF: 2nd RF transf band E; pri universal 1 pie, secd universal 2 pie; unshielded, mts in turret; pri 135 turns #38 AWG wire, secd 104 turns #38 AWG wire; 1 3/32" lg x 1/4" OD less term; steatite form, core Pyroferric #PY2RA; form 1 3/32" lg x 1/4" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/16"-14 stud and nut; 4 radial turret type term, 2 near top, 2 near bottom; marked T-111; coated Q-Max A-27; Espey Part/Dwg #15.081	2nd RF transformer band E
T-112	2Z9629-393 17-T-82449-2831	COIL, RF: 2nd RF transf band D; pri universal 1 pie, secd universal 2 pie; unshielded, mts in turret; pri 105 turns #38 AWG wire, secd 44 turns #38 AWG wire; 1 3/32" lg x 1/4" OD less term; steatite form, core Pyroferric #PY1RA; form 1 3/32" lg x 1/4" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/16"-14 stud and nut; 4 radial turret type term, 2 near top, 2 near bottom; marked T-112; coated Q-Max A-27; Espey Part/Dwg #15.080	2nd RF transformer band D

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
T-113	3C1084Z70-21 17-T-82442-1160	COIL, RF: 2nd RF transf band C; pri and secd single layer solenoid; unshielded, mts in turret; pri 20 turns #38 AWG wire, secd 25 turns #28 AWG wire; 1 13/32" lg x 11/32" OD less term; steatite form, core Pyroferric #PY14A; form 1 13/32" lg x 11/32" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/8"-14 stud and nut; 4 radial turret type term, 2 near top, 2 near bottom; marked T-113; coated Q-Max A-27; Espey Part/Dwg #15.079	2nd RF transformer band C
T-114	2Z9629-391 17-T-82439-6491	COIL, RF: 2nd RF transf band B; pri and secd single layer solenoid; unshielded, mts in turret; pri 4 close turns #36 AWG wire, secd 11 turns #27 AWG wire; 1 13/32" lg x 11/32" OD less term; steatite form, core Pyroferric #PY13A; form 1 13/32" lg x 11/32" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/8"-14 stud and nut; 4 radial turret type term, 2 near top, 2 near bottom; marked T-114; coated Q-Max A-27; Espey Part/Dwg #15.078	2nd RF transformer band B
T-115	2Z9629-392 17-T-82437-5651	COIL, RF: 2nd RF transf band A; pri and secd single layer solenoid; unshielded, mts in turret; pri universal pie 25 turns #38 AWG wire, secd 5 turns #16 AWG, silver pl wire; 1 13/32" lg x 11/32" OD less term; steatite form, core Pyroferric #PY13A; form 1 13/32" lg x 11/32" OD; adj iron core; scdr adj thru bottom of core, hex adj on other end; mts by integral 3/8"-14 stud and nut; 4 radial turret type term, 2 near top, 2 near bottom; marked T-115; coated Q-Max A-27; Espey Part/Dwg #15.077	2nd RF transformer band A
T-116	2Z9641.336 17-T-67598-3701	TRANSFORMER, IF: 455 kc; 1st IF input; unshielded; 1 13/32" lg x 11/32" diam less term; core Pyroferric #PY2RA; tuned pri only; adj iron core tuning, scdr adj on top and bottom; mts by integral 3/8"-14 thd and nut; 4 radial type term, 2 near top, 2 near bottom; marked T-116, coated Q-Max A-27; Espey Part/Dwg #16.291	455 kc IF transformer
T-117	2Z9641.337 17-T-67603-1001	TRANSFORMER, IF: 455 kc; 1 13/32" lg x 11/32" diam less term; core Pyroferric #PY2RA; double tuned; iron core tuning; 2 mtg studs #6-32 spaced diagonally on 0.913" x 0.813" mtg/c; 4 solder post term on bottom 11/32" h; coils impr Q-Max A-27, incl 2 capacitors JAN Type #CM20D431J, marked "T-117, PRI, SEC," shield Espey Part/Dwg #23.226 used but not incl; Espey Part/Dwg #16.293	455 kc IF transformer
T-118	2Z9641.338 17-T-67603-1051	TRANSFORMER, IF: 455 kc; detector input; unshielded; 1 13/32" lg x 11/32" diam less term; core Pyroferric #PY2RA; double tuned; adj iron core 2 mtg studs #6-32 spaced diagonally on 0.913" x 0.813" mtg/c; 4 solder post term on bottom 11/32" h; coils impr Q-Max A-27, incl 2 capacitors JAN Type #CM20B431J and 1 Capacitor JAN Type #CC26SL101J, marked "T-118, PRI, SEC," shield Espey Part/Dwg #23.227D used but not incl; Espey Part/Dwg #16.294	455 kc IF transformer
T-119	2Z9613.651 17-T-74225-2397	TRANSFORMER, POWER: fil and plate type; input 115 v 50/60 cyc, single ph; 3 output windings; #1 secd is 640 v at 160 ma CT, #2 secd is 6.3 v at 5.5 amp, #3 secd is 5 v at 2 amp; 2000 v ins; HS metal case; 5" lg excluding term x 4 5/8" wd x 4" d; 10 solder lug term on bottom of case; 4 blind nut mtg holes 1/4"-20 on 3" x 3 5/8" mtg/c; Sherold #T-164; Espey Part/Dwg #18.091; Spec #JAN-T-27	Power transformer
T-120	2Z9632.545 17-T-65510-7325	TRANSFORMER, AF: plate coupling type; pri 10,000 ohms impedance CT, #1 secd 600 ohms impedance CT, #2 secd 6 ohms impedance; HS metal case, silicon steel core; 3 1/4" h excluding term x 2 1/2" lg x 2 1/4" wd; 5 w oper level; turns ratio of pri to 1/2 secd #1 is 8.16:1, secd #2 is 81.6:1; freq response 100 to 5000 cyc p/m 1db; electrostatic shield between pri and secd; 9 solder lug term on bottom; 4 blind nut mtg holes 8"-32 on 1 11/16" x 1 11/16" mtg/c; Sherold #T-166; Espey Part/Dwg #15.053; Spec #JAN-T-27	Audio output transformer

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
TB-101	3Z770-14.36 17-B-78036-3928	BOARD, TERMINAL: for mtg resistors and capacitors; 14 turret term lugs; 2 rows spaced on ⅜" ctr, ½" apart c to c; glass cloth base melamine resin; 4¼" lg x ¾" wd x ½" h o/a; 2 mtg holes 0.169" diam, spaced 3¾" c to c; symbol designations marked on board; Espey Part/Dwg #32.984	Cable connecting board
TB-102	3Z770-20.23 17-B-78137-4487	BOARD, TERMINAL: for mtg resistors and capacitors; 20 turret term lugs; 2 rows spaced on 1⅛" ctr, 5/16" apart c to c; glass cloth base melamine resin; 3¼" lg x 1½" wd x ½" h o/a; 2 mtg holes 0.169" diam, spaced 2½" c to c; symbol designations marked on board; Espey Part/Dwg #32.979	Component mounting board
TB-103	3Z770-10.39 17-B-77933-9127	BOARD, TERMINAL: for mtg resistors and capacitors; 6 turret term lugs; 2 rows spaced on 1⅛" ctr, 5/16" apart c to c; glass cloth base melamine resin; 2 5/16" lg x 1½" wd x ½" h o/a; 2 mtg holes 0.169" diam, spaced 1 5/16" c to c; symbol designations marked on board; Espey Part/Dwg #32.981	Component mounting board
TB-104		Not used	
TB-105	3Z770-20.24 17-B-78137-4469	BOARD, TERMINAL: for mtg resistors and capacitors; 20 turret term lugs, Keystone #1509; 2 rows spaced on 1⅛" ctr, 5/16" apart c to c; glass cloth base melamine resin; 3¼" lg x 1½" wd x 3/32" thk; 2 mtg holes, 0.169" diam, spaced 2½" c to c; symbol designations marked on board; Espey Part/Dwg #32.977	Component mounting board
TB-106	3Z770-20.25 17-B-78137-4475	BOARD, TERMINAL: for mtg resistors and capacitors; 20 turret term lugs; 2 rows spaced on 1⅛" ctr, 5/16" apart c to c; glass cloth case melamine resin; 3¼" lg x 1½" wd x ½" h o/a; 2 mtg holes, 0.169" diam, spaced 2½" c to c; symbol designations marked on board; Espey Part/Dwg #32.978	Component mounting board
TB-107	3Z770-20.26 17-B-78137-4481	BOARD, TERMINAL: for mtg resistors and capacitors; 20 turret term lugs; 2 rows spaced on 1⅛" ctr, 5/16" apart c to c; glass cloth base melamine resin; 3¼" lg x 1½" wd x ½" h o/a; 2 mtg holes 0.169" diam, spaced 2½" c to c; symbol designations marked on board; Espey Part/Dwg #32.980	Component mounting board
TB-108	3Z770-6.65 17-B-78033-9017	BOARD, TERMINAL: component mtg board; 14 turret type solder lug term; 2 rows 1⅛" apart; glass base melamine board Type GMG per JAN-P-13; board dimen 2 5/16" lg x 1½" wd x 3/32" thk; 2 mtg holes 0.169" diam on 1 5/16" x ¾" mtg/c; marked "C-199, R-171, R-159, C-193, R-121, R-169, R-168"; Espey Part/Dwg #32.1104	Component mounting board
TB-109	3Z770-1.15 17-B-77482-9166	BOARD, TERMINAL: tie post; 1 solder lug term; ⅜" apart, from ctr of mtg hole; glass base melamine board type GMG per Spec #JAN-P-13; board dimen ¾" lg x ⅜" wd x 1/16" thk; 1 mtg hole 0.145" diam; Espey Part/Dwg #8.203	Tie post
TB-110	3Z770-2.58 17-B-77532-9195	BOARD, TERMINAL: tie post; 2 solder lug term; term ⅜" c to c; glass base melamine board type GMG per Spec #JAN-P-13; board dimen ¾" lg x ⅜" wd x 1/16" thk; 1 mtg hole 0.145" diam; Espey Part/Dwg #8.207	Tie post
TB-111	3Z770-2.57 17-B-77533-8532	BOARD, TERMINAL: tie post; 2 solder lug term; term ¾" c to c; glass base melamine board type GMG per Spec #JAN-P-13; board dimen 1⅛" lg x ⅜" wd x 1/16" thk; 1 mtg hole 0.145" diam; Espey Part/Dwg #8.303	Tie post
TB-112		Not used	
TB-113	3Z770-3.39 17-B-77583-8551	BOARD, TERMINAL: tie post; 3 solder lug term; term ⅜" c to c; glass base melamine board type GMG per Spec #JAN-P-13; board dimen 1⅛" lg x ⅜" wd x 1/16" thk; 1 mtg hole 0.145" diam; Espey Part/Dwg #8.306	Tie post

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
V-101	2J6BA6 16-T-56211	TUBE, ELECTRON: JAN Type #6BA6; miniature RF amplr pent, remote cut off	First RF amplifier
V-102		Same as V-101	Second RF amplifier
V-103	2J6BE6 16-T-56211-50	TUBE, ELECTRON: JAN Type #6BE6; miniature type pentagrid converter	Mixer
V-104	2J6C4 16-T-56214	TUBE, ELECTRON: JAN Type #6C4; HF triode	High frequency oscillator
V-105	2J6J6 16-T-56360	TUBE, ELECTRON: JAN Type #6J6; miniature UHF twin triode	Scanning amplifier
V-106		Same as V-101	First IF amplifier
V-107		Same as V-101	Second IF amplifier
V-108		Same as V-101	C.W. oscillator
V-109	2J6AL5 16-T-56195	TUBE, ELECTRON: JAN Type #6AL5; twin diode	Detector and noise limiter
V-110	2J12AU7 16-T-58241	TUBE, ELECTRON: JAN Type #12AU7; miniature twin triode	2nd AF amplifier and phase inverter
V-111	2J6AQ5 16-T-56198	TUBE, ELECTRON: JAN Type #6AQ5; miniature type beam power amplr tetrode	AF power amplifier
V-112		Same as V-111	AF power amplifier
V-113	2J5R4GY 16-T-55444	TUBE, ELECTRON: JAN Type #5R4GY; full wave rect	High voltage rectifier
V-114	2J0A2 16-T-52001	TUBE, ELECTRON: JAN Type #OA2; miniature type v regulator	Voltage regulator
V-115		Same as V-109	A.G.C. rectifier
V-116	2J12AT7 16-T-58240-10	TUBE, ELECTRON: JAN Type #12AT7; UHF twin triode	First AF amplifier
W-101	3E7350-2.72.9 17-C-48585-3469	CABLE ASSEMBLY, POWER: AN Type MCOS-2 cable; 5'-10" lg excluding termination; 6' lg incl term; 1 end AN3106-14S-2S (6-8M) plug w/ AN3057-6 (6-8M) clamp, other end bared ⅜" lg and stripped 2" lg, #20 bare copper wire 2½" lg soldered to shield; Espey Part/Dwg #13.117	Speaker cable
W-102	3E7350.1-116.1 17-C-48248-1001	CABLE ASSEMBLY, POWER: AN Type MCOS-2 cable; 9'-8" excluding terminations; 1 end AN 3106-14S-2S (6-8M) plug W/AN3057-6 (6-8M) clamp, other end AN 97-6015 (8C) shell w/ 2 cont male plug and clamp; Espey Part/Dwg #13.116	Power supply cable
XF-101	3Z3285-2.1 17-F-74267-5075	FUSEHOLDER: extractor post type; for 1 AGC cartridge type fuse 1¼" lg x ¼" diam; black bakelite; 15 amp at 250 v max; 1⅝" OD x 2⅜" lg o/a; for mtg in 1½" diam panel hole; 2 solder lug term: Bussman Type #HKP; Espey Part/Dwg #32.205	Holder for F-101
XF-102		Same as XF-101	Holder for F-102
XF-103		Same as XF-101	Holder for F-103 (spare fuse)
XF-104		Same as XF-101	Holder for F-104 (spare fuse)

TABLE 8-4. PARTS LIST—Continued

REFERENCE DESIGNATION	STOCK NO., SIG. CORP. STANDARD NAVY AND AIR FORCE	NAME AND DESCRIPTION	LOCATING FUNCTION
XI-101	2Z8723.1 17-L-77711-5231	LIGHT, PANEL: miniature bayonet; steel body; 2 1/16" lg x 5/8" diam of base approx; side mtg bkt w/ oval slot 33/64" lg; mtg bkt parallel to axis of lamp, 2 solder lug term perpendicular to lamp axis opposite mtg bkt; Drake Type #206CE; Espey Part/Dwg #32.1069	Holder for I-101
XI-102		Same as XI-101	Holder for I-102
XV-101	2Z8677.99 16-S-62603-6693	SOCKET, TUBE: 7 cont miniature; JAN Type #TSE7T102; brass saddle, top mtg; 2 holes 0.125" diam on 0.875" mtg/c; ceramic, 0.800" diam x 33/64" h, excluding term; beryllium copper silver pl; w/ shield base, ctr shield 0.180" OD; shock mtg; Espey Part/Dwg #32.538; Spec #JAN-S-28A	Mounting for V-101
XV-102		Same as XV-101	Mounting for V-102
XV-103		Same as XV-101	Mounting for V-103
XV-104		Same as XV-101	Mounting for V-104
XV-105	2Z8677.94 16-S-62603-6692	SOCKET, TUBE: 7 cont miniature; JAN Type #TSE7T101; brass saddle, top mtg; 2 holes 0.125" diam on 0.875" mtg/c; molded plastic, 0.800" diam x 33/64" h, excluding term; beryllium copper, silver pl; w/ metal shock shield base, w/ ctr shield 0.180" OD; Espey Part/Dwg #32.417; Spec #JAN-S-28A	Mounting for V-105
XV-106		Same as XV-105	Mounting for V-106
XV-107		Same as XV-105	Mounting for V-107
XV-108		Same as XV-105	Mounting for V-108
XV-109		Same as XV-105	Mounting for V-109
XV-110	2Z8679.30 16-S-64063-6718	SOCKET, TUBE: 9 cont miniature; JAN Type #TSE9T101; 1 piece saddle mtg; 2 holes 0.125" diam on 1.125" mtg/c; molded plastic, 0.940" diam; copper alloy cont, silver pl; w/ metal shock shield base and ctr shield 0.180" OD; Espey Part/Dwg #32.416; Spec #JAN-S-28A	Mounting for V-110
XV-111		Same as XV-105	Mounting for V-111
XV-112		Same as XV-105	Mounting for V-112
XV-113	2Z8678.327 16-S-63515-4156	SOCKET, TUBE: 8 cont octal; JAN Type #TSB8T102; 1 piece brass saddle mtg 1 11/16" lg x 1 3/8" wd; 2 holes 0.156" diam on 1.50" mtg/c; round ceramic, 1 7/16" diam x 5/8" h, less term and saddle mtg; copper alloy cont, silver pl; marked TSB8T102; Spec #JAN-S-28A	Mounting for V-113
XV-114		Same as XV-105	Mounting for V-114
XV-115		Same as XV-105	Mounting for V-115
XV-116		Same as XV-110	Mounting for V-116
Y-101	2X222.1-455 16-C-96420-1074	CRYSTAL UNIT, QUARTZ: 1 xtal plate: 455 kc, p/m 0.1%; minus 20 deg C to plus 50 deg C; 2 turret type lugs on bottom w/ tinned copper wire soldered to ea 0.406" apart, lugs 0.093" OD x 1/4" lg, wires #20 gauge x 1 3/8" lg, rectangular case metal covered phenolic, 1 11/16" lg x 33/64" wd x 1/2" h w/ rounded corners non-adjustable air gap; free of spurious responses p/m 7 kc; Bliley Part #VX-4; Espey Part/Dwg #31.053	455 kc crystal

TABLE 8-5. MAINTENANCE PARTS KIT

KEY DESIGNATION	QUANTITY	KEY DESIGNATION	QUANTITY
*V-101		V-113	2
*V-102		V-114	1
*V-106	2	V-116	1
*V-107		F-101	2
*V-108		F-102	2
V-103	1	I-101	1
V-104	1	I-102	1
V-105	1	E-301	1
V-109	1	H-301	1
V-110	1	J-301	1
V-111	1	J-302	1
V-112	1	J-303	1

*Two 6BA6 tubes supplied as maintenance replacements for V-101, V-102, V-106, V-107 and V-108.

TABLE 8-6. CROSS REFERENCE PARTS LIST

JAN (OR AWS) DESIGNATION	KEY SYMBOL
CC21CH050D	C-127
CC21SL020C	C-218
CC21SL050F	C-227
CC21SL080D	C-215
CC21SL150G	C-104
CC21SL240G	C-142
CC26SL101J	C-140
CE31F450R	C-203
CE32F400R	C-202A
CE63D500F	C-185
CM20B101K	C-126
CM20B271K	C-112
CM20C111G	C-205
CM20C151G	C-217
CM20C151J	C-157
CM20C820G	C-165
CM20D361G	C-144
CM20D431J	C-156
CM20D471J	C-224
CM25B681K	C-188
CM25D751G	C-146
CM30C202J	C-184
CM30D182G	C-149
CM35B103M	C-123
CM35D392G	C-151
CM35D562G	C-143
CN20E103M	C-119
CN35A103M	C-116
CP29A1EF104K	C-226
CP29A1EF203K	C-186
CP29A2EF104M	C-154
CP29A2EF503M	C-117
CP53B1EF504V	C-141
CP53B4EF104L	C-172A
CV11C450	C-216
JJ-034	J-103
RC20BF100K	R-115
RC20BF101K	R-139
RC20BF102K	R-108
RC20BF103K	R-148
RC20BF104J	R-155
RC20BF104K	R-149
RC20BF105K	R-153
RC20BF121J	R-121
RC20BF122K	R-178
RC20BF152K	R-109
RC20BF154K	R-122
RC20BF223K	R-126
RC20BF224K	R-134
RC20BF302J	R-182
RC20BF390K	R-174
RC20BF391K	R-142
RC20BF472K	R-104
RC20BF473K	R-151
RC20BF474K	R-102
RC20BF510J	R-138
RC20BF511J	R-107
RC20BF561J	R-171
RC20BF680J	R-103
RC20BF681K	R-120
RC20BF683J	R-156
RC20BF822K	R-176
RC20BF824K	R-157
RC42BF223K	R-125
RC42BF472K	R-123
RW20G201	R-170
RW32G312	R-173
RW36E283	R-132
TSB8T102	XV-113
TSE7T101	XV-105
TSE7T102	XV-101
TSE9T101	XV-110
TSF0T101	E-109
TSF0T102	E-101
TSF0T103	E-111
TSF0T105	E-110
OA2	V-114
12AU7	V-110
12AT7	V-116
5R4GY	V-113
6AL5	V-109
6AQ5	V-111
6BA6	V-101
6BE6	V-103
6C4	V-104
6J6	V-105

NAVY TYPE	KEY SYMBOL
28032-2	F-101
49025A	J-103
49120	J-101
49121A	J-301
49192	E-301
49194	J-102
49195	J-302
63355-680	R-103
63360-154	R-122

ARMY-NAVY TYPE	KEY SYMBOL
AN3013D3	H-109
AN3057-6	H-301
AN3102-14S-2P	J-104
AN3102-14S-7P	J-105
AN3106A-14S-2S	J-303
AN3234-1	S-107
AN8008-D13	O-119
AN8008-D14	O-121
CY-851/TRR-5	A-301
LS-171/U	LS-201
MCOS-2	W-101

SIGNAL CORPS STOCK NO.	KEY SYMBOL
2A3171.1-22	O-107
2B275-7	O-140

TABLE 8-6. CROSS REFERENCE PARTS LIST—Continued

SIGNAL CORPS STOCK NO.	KEY SYMBOL
2C4180-366-1	E-183
2J0A2	V-114
2J12AT7	V-116
2J12AU7	V-110
2J5R4GY	V-113
2J6BA6	V-101
2J6BE6	V-103
2J6C4	V-104
2J6AL5	V-109
2J6AQ5	V-111
2J6J6	V-105
2X222.1-455	Y-101
2Z1244-76	A-103
2Z1244-77	A-104
2Z1244-189	O-133
2Z1578-35	A-309
2Z1891-851	A-301
2Z299-359	E-301
2Z2626.2	H-102
2Z2636-26	H-101
2Z2642.283	H-105
2Z2642.312	H-106
2Z2642-446	H-301
2Z2935-92	O-125
2Z3021-148	J-101
2Z3023-5	J-105
2Z3062-191	J-301
2Z3065-104	J-303
2Z3194-48	E-139
2Z3197A-15	E-141
2Z3197A-71	E-163
2Z3351-296	A-307
2Z3351-297	A-310
2Z3351-298	A-304
2Z3351-299	A-305
2Z3352.37	A-102
2Z3600-48	E-117
2Z3723-186	N-107
2Z3723-329	N-105
2Z4868-1092	O-112
2Z4878-1069	O-101
2Z4878-1070	O-102
2Z4885-207	O-118
2Z4885-208	O-117
2Z5180-26	O-103
2Z5534	J-103
2Z558-61	O-134
2Z5822-409	E-133
2Z5822-410	E-124
2Z5822-615	E-135
2Z5822-616	E-156
2Z5952	I-101
2Z6820.371	A-302
2Z7091-524	O-138
2Z7091-525	O-136
2Z7091-563	A-306
2Z7091-564	A-308
2Z7091-567	O-131
2Z7226-259A	J-302
2Z7255-51	O-104
2Z736-65	O-110
2Z736-66	O-111
2Z7390-177	E-136
2Z7391-5	O-115
2Z7391-6	O-116
2Z7780-153	O-132
2Z7899-220	J-104
2Z8076-155	N-106
2Z8076-174	N-110
2Z8202-49	O-109
2Z8202-50	O-105
2Z8304.57	E-109
2Z8304.154	E-101
2Z8304.172	E-111
2Z8304.183	E-110
2Z8304.282	O-139
2Z8304.283	E-155
2Z8309-14	E-148
2Z8309-15	E-146
2Z8309-16	E-147
2Z8405-113	O-121
2Z8405-114	O-119
2Z8677.94	XV-105
2Z8677.99	XV-101
2Z8678.327	XV-113
2Z8679.30	XV-110
2Z8723.1	XI-101
2Z8799-239	J-102
2Z8877.640	E-145
2Z8879A-9	O-137
2Z8879-312	O-106
2Z8879-325	O-113
2Z9052-111	H-115
2Z9613.651	T-119
2Z9629-391	T-114
2Z9629-392	T-115
2Z9629-393	T-112
2Z9629-394	T-108
2Z9629-395	T-111
2Z9629-396	T-104
2Z9629-397	T-106
2Z9629-398	E-161
2Z9629-399	E-158
2Z9629-400	E-159
2Z9629-401	E-160
2Z9632.545	T-120
2Z9641.336	T-116
2Z9641.337	T-117
2Z9641.338	T-118
3C1081-31R	L-103
3C1081-31S	L-101
3C1081-31T	L-102
3C1081-31U	L-104
3C1081-31V	L-105
3C1081-31W	L-107
3C1084Z70-16	L-106
3C1084Z70-17	T-103

TABLE 8-6. CROSS REFERENCE PARTS LIST—Continued

SIGNAL CORPS STOCK NO.	KEY SYMBOL	SIGNAL CORPS STOCK NO.	KEY SYMBOL	SIGNAL CORPS STOCK NO.	KEY SYMBOL
3C1084Z70-18	T-105	3K2011133	C-205	3RC20BF681K	R-120
3C1084Z70-19	T-107	3K2015132	C-157	3RC20BF683J	R-156
3C1084Z70-20	T-109	3K2015133	C-217	3RC20BF822K	R-176
3C1084Z70-21	T-113	3K2027121	C-112	3RC20BF824K	R-157
3C1084Z70-22	T-110	3K2036143	C-144	3RC42BF223K	R-125
3C1084Z70-23	T-101	3K2043142	C-156	3RC42BF472K	R-123
3C1084Z70-24	T-102	3K2047142	C-224	3RW20135	R-170
3C1084Z70-25	L-109	3K2082033	C-165	3RW27306	R-173
3C554D	L-108	3K2568121	C-188	3RW32000	R-132
3DA100-1088	C-154	3K2575143	C-146	3Z1927	F-101
3DA100-688	C-226	3K3018243	C-149	3Z3285-2.1	XF-101
3DA100-731	C-172A	3K3020232	C-184	3Z5995-74	R-106
3DA10-367	C-116	3K3510324	C-123	3Z7020-6	R-101
3DA10-380	C-119	3K3539243	C-151	3Z7320-58	R-133
3DA20-181	C-186	3K3556243	C-143	3Z7498-25.85	R-164
3DA500-451	C-141	3RC20BF100K	R-115	3Z7498-50.137	R-158
3DA50-420	C-117	3RC20BF101K	R-139	3Z770-1.15	TB-109
3DA50-500	C-183	3RC20BF102K	R-108	3Z770-2.57	TB-111
3DB40-75	C-202A	3RC20BF103K	R-148	3Z770-2.58	TB-110
3DB45-2	C-203	3RC20BF104J	R-155	3Z770-3.39	TB-113
3DB50-71	C-185	3RC20BF104K	R-149	3Z770-6.65	TB-108
3D9002-49	C-218	3RC20BF105K	R-153	3Z770-10.39	TB-103
3D9010-84	C-124	3RC20BF121J	R-121	3Z770-14.36	TB-101
3D9012V-23	C-101	3RC20BF122K	R-178	3Z770-20.23	TB-102
3D9015-141	C-104	3RC20BF152K	R-109	3Z770-20.24	TB-105
3D9024-41	C-142	3RC20BF154K	R-122	3Z770-20.25	TB-106
3D9025V-95	C-181	3RC20BF222K	R-161	3Z770-20.26	TB-107
3D9045V-15	C-216	3RC20BF223K	R-126	3Z9823-15.28	S-107
3D9005-42	C-127	3RC20BF224K	R-134	3Z9825-62.488	S-104
3D9005-69	C-227	3RC20BF302J	R-182	3Z9825-62.490	S-101
3D9005-114	C-155	3RC20BF390K	R-174	3Z9825-62.491	S-108
3D9006V-22	C-163	3RC20BF391K	R-142	3Z9825-62.643	S-106
3D9008-50	C-215	3RC20BF472K	R-104	6C42-171	LS-201
3D9100-272	C-140	3RC20BF473K	R-151	6L3410-32-10	H-116
3D9267VE7	C-108	3RC20BF474K	R-102	6L3673-16	H-122
3E7350.1-116.1	W-102	3RC20BF510J	R-138	6L54002-21	H-130
3E7350-2.72.9	W-101	3RC20BF511J	R-107	6L54007-12	H-170
3G350-101	E-118	3RC20BF561J	R-171	6L58016-3	H-109
3K2010121	C-126	3RC20BF680J	R-103	6L70050	H-126

TABLE 8-6. CROSS REFERENCE PARTS LIST—Continued

SIGNAL CORPS STOCK NO.	KEY SYMBOL
6Q335-6	H-183
6R57400.1	H-107
6R57400-23	H-108
6Z9463-3	N-104
6Z9463-4	N-103

STANDARD NAVY STOCK NO.	KEY SYMBOL
GSK17-L-6297	I-101
16-B-750001-356	A-103
16-B-750001-357	A-104
16-B-750001-485	O-133
16-C-10630-1866	A-309
16-C-15433-4505	C-218
16-C-15627-9158	C-127
16-C-15629-4669	C-155
16-C-15636-2514	C-227
16-C-15921-2998	C-124
16-C-15980-9005	C-104
16-C-16172-9005	C-142
16-C-170001-337	A-301
16-C-17076-2560	C-140
16-C-19943-9063	C-203
16-C-19956-5648	C-185
16-C-22000-7560	C-202A
16-C-28204-9521	C-165
16-C-28558-1676	C-126
16-C-28653-4321	C-205
16-C-28969-9121	C-217
16-C-28975-1601	C-157
16-C-29613-2676	C-112
16-C-29813-9926	C-144
16-C-30003-8206	C-156
16-C-300143-171	O-136
16-C-300446-551	O-138
16-C-300923-675	H-106
16-C-30109-3806	C-224
16-C-302837-594	H-101
16-C-30536-5072	C-188

STANDARD NAVY STOCK NO.	KEY SYMBOL
16-C-30658-2122	C-146
16-C-31660-5014	C-149
16-C-31797-5445	C-184
16-C-32425-4658	C-151
16-C-32821-1658	C-143
16-C-33627-7705	C-123
16-C-42762-6654	C-119
16-C-42765-4879	C-116
16-C-43117-2318	C-186
16-C-44287-6667	C-117
16-C-45777-3316	C-226
16-C-45807-7304	C-154
16-C-47321-9648	C-141
16-C-53192-8190	C-172A
16-C-58054-8405	C-163
16-C-58940-9561	C-181
16-C-600001-209	O-125
16-C-63520-8651	C-108
16-C-64133-6581	C-216
16-C-64452-3811	C-101
16-C-650001-431	A-310
16-C-650001-432	A-304
16-C-650001-433	A-305
16-C-650001-434	A-307
16-C-76231-5584	L-105
16-C-76295-5116	T-105
16-C-76320-7008	L-104
16-C-76423-2580	T-104
16-C-76423-8714	L-103
16-C-76472-3251	T-103
16-C-76497-1181	L-102
16-C-76503-3839	T-102
16-C-76503-6489	L-101
16-C-76503-8201	L-107
16-C-76504-9818	L-106
16-C-76505-6701	T-101
16-C-96420-1074	Y-101
16-G-431530-385	O-101
16-G-434048-311	O-102

STANDARD NAVY STOCK NO.	KEY SYMBOL
16-H-900066-501	O-103
16-K-700325-301	E-124
16-K-700417-636	E-135
16-K-700439-101	E-156
16-K-700632-210	E-133
16-M-61160-5951	H-102
16-M-78552-8646	A-302
16-P-401881-180	A-306
16-P-401881-181	A-308
16-P-401941-102	O-131
16-P-403561-120	N-104
16-R-29238-6580	L-108
16-R-33591-1262	E-183
16-R-49238-811	R-115
16-R-4931-811	R-174
16-R-49444-431	R-138
16-R-49490-0431	R-103
16-R-49580-811	R-139
16-R-49597-431	R-121
16-R-49733-0811	R-142
16-R-49786-0431	R-107
16-R-49804-431	R-171
16-R-49841-811	R-120
16-R-49922-811	R-108
16-R-49940-811	R-178
16-R-49967-0811	R-109
16-R-50012-811	R-161
16-R-50047-431	R-182
16-R-501081-112	H-105
16-R-50129-0811	R-104
16-R-50130-711	R-123
16-R-50237-811	R-176
16-R-50282-811	R-148
16-R-502981-101	O-110
16-R-502981-102	O-111
16-R-50372-0811	R-126
16-R-50373-421	R-125
16-R-50480-0811	R-151
16-R-50551-431	R-156

TABLE 8-6. CROSS REFERENCE PARTS LIST—Continued

STANDARD NAVY STOCK NO.	KEY SYMBOL	STANDARD NAVY STOCK NO.	KEY SYMBOL	STANDARD NAVY STOCK NO.	KEY SYMBOL
16-R-50632-431	R-155	16-T-56198	V-111	17-C-83795-6794	E-139
16-R-50633-0811	R-149	16-T-56211	V-101	17-C-83819-6969	E-141
16-R-50678-0811	R-122	16-T-56211-50	V-103	17-C-945001-846	A-102
16-R-50714-0811	R-134	16-T-56214	V-104	17-C-965001-302	O-140
16-R-50822-0811	R-102	16-T-56360	V-105	17-F-16302-100	F-101
16-R-50930-811	R-157	16-T-58240-10	V-116	17-F-74267-5075	XF-101
16-R-50975-811	R-153	16-T-58241	V-110	17-G-154401-951	E-117
16-R-65753-8750	R-170	16-T-98501-1012	E-159	17-G-159732-376	O-112
16-R-66167-8970	R-173	16-T-98501-1013	E-158	17-J-39248-4418	J-103
16-R-88081-8700	R-164	16-T-98501-1014	E-161	17-L-77711-5231	XI-101
16-R-88181-8682	R-158	16-T-98501-1015	E-160	17-L-91368-1947	LS-201
16-R-89761-3150	R-101	16-W-180001-224	H-170	17-M-75103-3701	O-119
16-S-117101-395	N-107	16-W-180001-225	H-130	17-M-75138-3001	O-121
16-S-117101-399	N-106	16-W-63688-2639	N-103	17-R-250001-122	O-132
16-S-117101-564	N-110	17-A-25801-1012	O-104	17-S-250051-153	E-136
16-S-117101-622	N-105	17-B-51441-1001	O-134	17-S-46756-8050	O-113
16-S-21226-1077	O-105	17-B-77482-9166	TB-109	17-S-46763-9803	E-145
16-S-21226-1078	O-109	17-B-77532-9195	TB-110	17-S-46768-3160	O-106
16-S-33571-1035	E-147	17-B-77533-8532	TB-111	17-S-46886-1016	O-137
16-S-33571-1036	E-146	17-B-77583-8551	TB-113	17-S-59672-7853	S-101
16-S-33571-1037	E-148	17-B-77933-9127	TB-103	17-S-59674-9710	S-106
16-S-34520-3862	E-109	17-B-78033-9017	TB-108	17-S-59795-9647	S-108
16-S-34557-8350	E-101	17-B-78036-3928	TB-101	17-S-61607-6012	S-104
16-S-34576-6513	E-110	17-B-78137-4469	TB-105	17-S-69085-2701	S-107
16-S-34607-8400	E-111	17-B-78137-4475	TB-106	17-T-28218-3901	E-118
16-S-35571-1044	E-155	17-B-78137-4481	TB-107	17-T-65516-7325	T-120
16-S-37071-1002	O-139	17-B-78137-4487	TB-102	17-T-67598-3701	T-116
16-S-469501-107	O-117	17-C-48248-1001	W-102	17-T-67603-1001	T-117
16-S-469501-108	O-118	17-C-48585-3469	W-101	17-T-67603-1051	T-118
16-S-469501-109	O-116	17-C-67444-1285	E-301	17-T-74225-2397	T-119
16-S-469501-110	O-115	17-C-70334-5431	J-303	17-T-82437-5651	T-115
16-S-62603-6692	XV-105	17-C-71120-4869	J-301	17-T-82437-5681	T-110
16-S-62603-6693	XV-101	17-C-71414-2800	J-302	17-T-82439-6491	T-114
16-S-63515-4156	XV-113	17-C-72604-1522	J-105	17-T-82439-6521	T-109
16-S-64063-6718	XV-110	17-C-72610-5434	J-104	17-T-82442-1160	T-113
16-S-692001-114	H-115	17-C-73108-5890	J-102	17-T-82442-1161	T-108
16-T-52001	V-114	17-C-73411-2793	J-101	17-T-82449-2831	T-112
16-T-55444	V-113	17-C-781366-217	H-301	17-T-82449-3426	T-107
16-T-56195	V-109	17-C-83782-2617	E-163	17-T-82467-2821	T-106

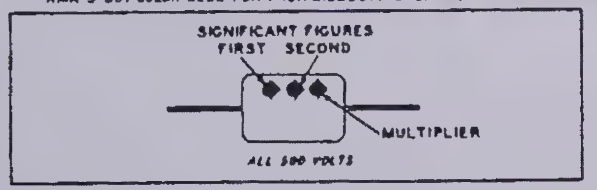
TABLE 8-6. CROSS REFERENCE PARTS LIST—Continued

STANDARD NAVY STOCK NO.	KEY SYMBOL	STANDARD NAVY STOCK NO.	KEY SYMBOL	STANDARD NAVY STOCK NO.	KEY SYMBOL
17-T-82467-2831	T-111	42-R-2049	O-107	43-W-543	H-109
41-W-2410	H-107	43-N-99500-205	H-116	43-W-7221	H-126
41-W-2410-4	H-108	43-N-99500-219	H-122		

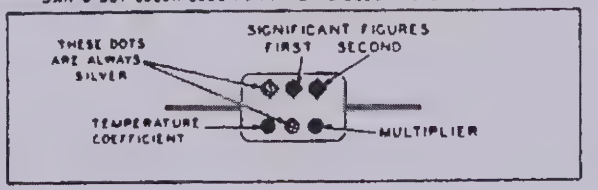
TABLE 8-7. APPLICABLE COLOR CODES

CAPACITOR COLOR CODES

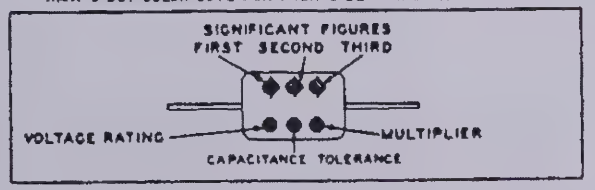
RMA 3-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS



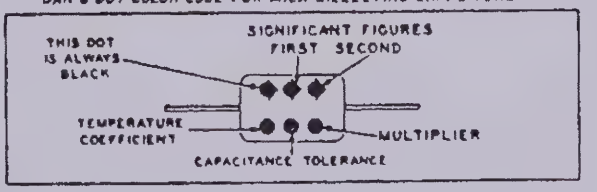
JAN 6-DOT COLOR CODE FOR PAPER-DIELECTRIC CAPACITORS



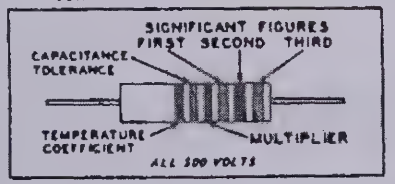
RMA 6-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS



JAN 6-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS

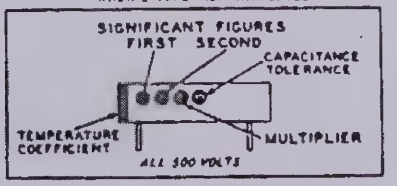


RMA COLOR CODE FOR TUBULAR CERAMIC-DIELECTRIC CAPACITORS

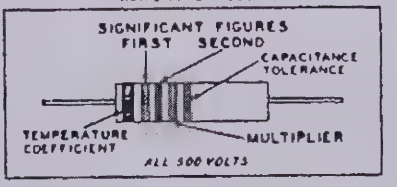


JAN COLOR CODE FOR FIXED CERAMIC-DIELECTRIC CAPACITORS

RADIAL TYPE NON-INSULATED



AXIAL TYPE INSULATED



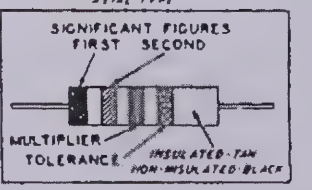
RMA: RADIO MANUFACTURERS ASSOCIATION
JAN: JOINT ARMY-NAVY

RESISTORS				CAPACITORS				
				MULTIPLIER				
TOLERANCE	MULTIPLIER	SIGNIFICANT FIGURE	COLOR	RMA MICA AND CERAMIC-DIELECTRIC	JAN MICA AND PAPER-DIELECTRIC	JAN CERAMIC DIELECTRIC	VOLTAGE RATING	TEMPERATURE COEFFICIENT
	1	0	BLACK	1	1	1		A
	10	1	BROWN	10	10	10	100	B
	100	2	RED	100	100	100	200	C
	1,000	3	ORANGE	1,000	1000	1000	300	D
	10,000	4	YELLOW	10,000			400	E
	100,000	5	GREEN	100,000			500	F
	1,000,000	6	BLUE	1,000,000			600	G
	10,000,000	7	VIOLET	10,000,000			700	
	100,000,000	8	GRAY	100,000,000		0.01	800	
	1,000,000,000	9	WHITE	1,000,000,000		0.1	900	
5	0.1		GOLD	0.1	0.1		1000	
10	0.01		SILVER	0.01	0.01		2000	
20			NO COLOR				500	

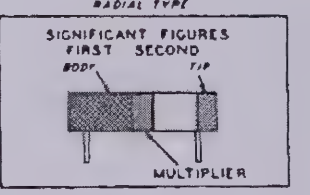
RESISTOR COLOR CODES

RMA COLOR CODE FOR FIXED COMPOSITION RESISTORS

AXIAL TYPE

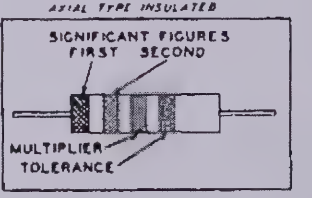


RADIAL TYPE



JAN COLOR CODE FOR FIXED COMPOSITION RESISTORS

AXIAL TYPE INSULATED



RADIAL TYPE NON-INSULATED

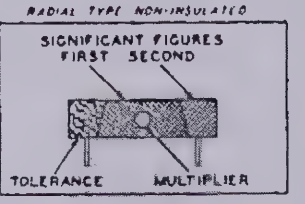


TABLE 8-8. LIST OF MANUFACTURERS

PREFIX NUMBER	NAME	ADDRESS
CAHW	Croname Inc.	3701 Ravenswood Avenue, Chicago, Ill.
CAIS	Birtcher Corp., The	5087 Huntington Drive, Los Angeles 32, Calif.
CAMQ	Cambridge Thermionic Corp.	455 Concord Avenue, Cambridge, Mass.
CAUP	Kurz-Kasch Inc.	1421 S. Broadway, Dayton, Ohio
CAXP	Lord Mfg.	1639 W. 12 Street, Erie, Pa.
CAYS	Drake Mfg. Co.	1713 W. Hubbard Street, Chicago, Ill.
CBI	Corning Glass Works	1943 Crystal Street, Corning, N. Y.
CER	Erie Resistor Corp.	644 W. 12 Street, Erie, Pa.
CFA	Bussman Mfg. Co.	2538 W. University Street, St. Louis, Mo.
CG	General Electric Co.	1 River Road, Schenectady 5, N. Y.
CHC	Hammerlund Mfg. Co.	460 W. 34 Street, New York, N. Y.
CIR	International Resistance Corp.	401 N. Broad Street, Philadelphia, Pa.
CJS	Jensen Radio Mfg. Co.	6601 So. Laramie Avenue, Chicago, Ill.
CKE	Espey Mfg. Co. Inc.	528 E. 72 Street, New York, N. Y.
CMA	Mallory, P. R., Co., Inc.	1941 Thomas Street, Indianapolis, Ind.
CMC	Clarostat Mfg. Co.	285-287 N. 6 Street, Brooklyn, N. Y.
CMU	Micro Switch Corp.	Freeport, Ill.
COC	Oak Mfg. Co.	1200 N. Clybourne Avenue, Chicago, Ill.
CPH	American Phenolic Corp.	1830 South Fifty-Fourth Avenue, Chicago, Ill.
CQB	Bliley Electric Co.	200 Union Station Bldg., Erie, Pa.
	Sherold Specialty Products Inc.	68 E. 131 Street, New York, N. Y.
	Waldes Kohinoor, Inc.	Austel Place, Long Island City, N. Y.
	Whitehead Metal Prod. Co.	303 W. 10 Street, New York 14, N. Y.

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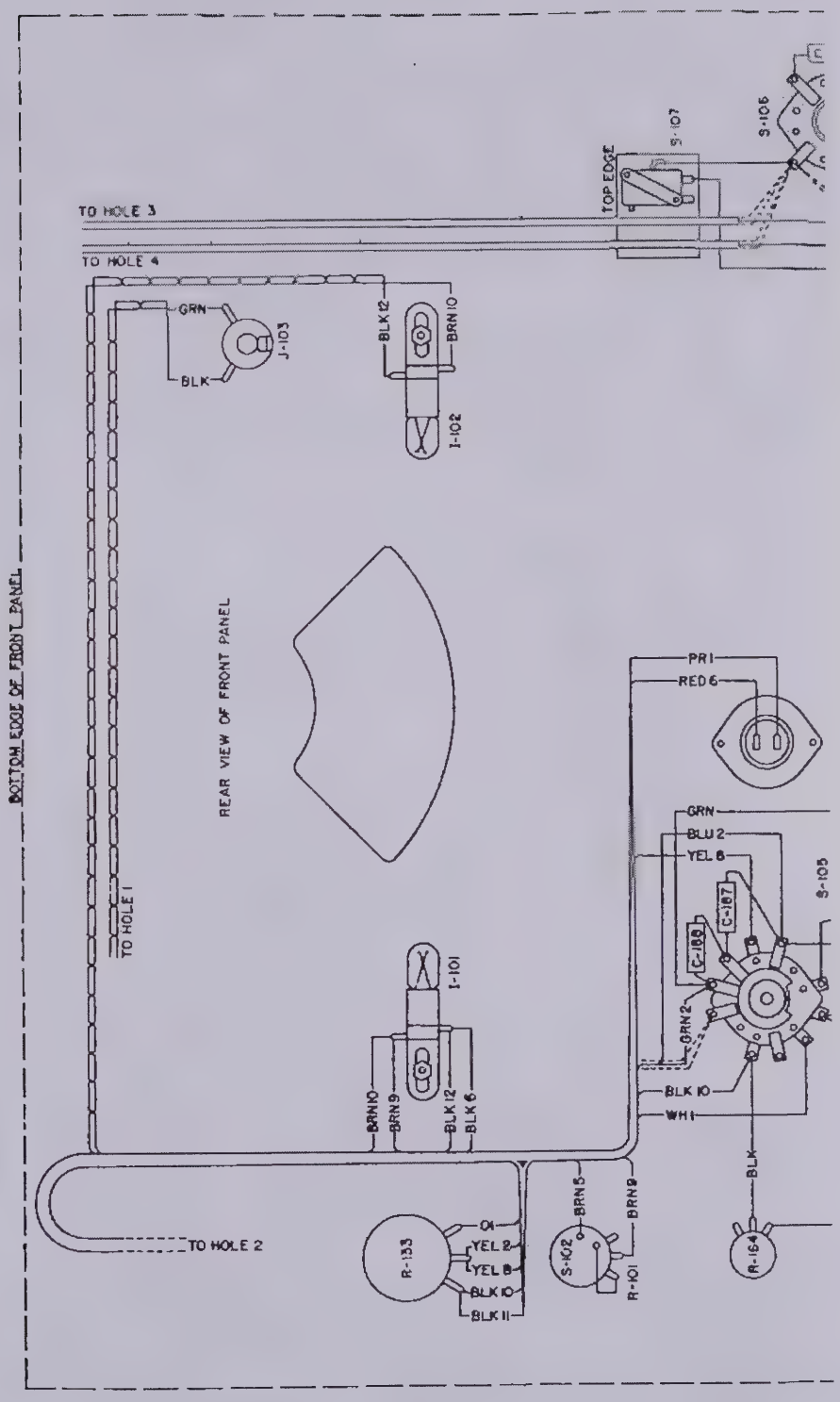
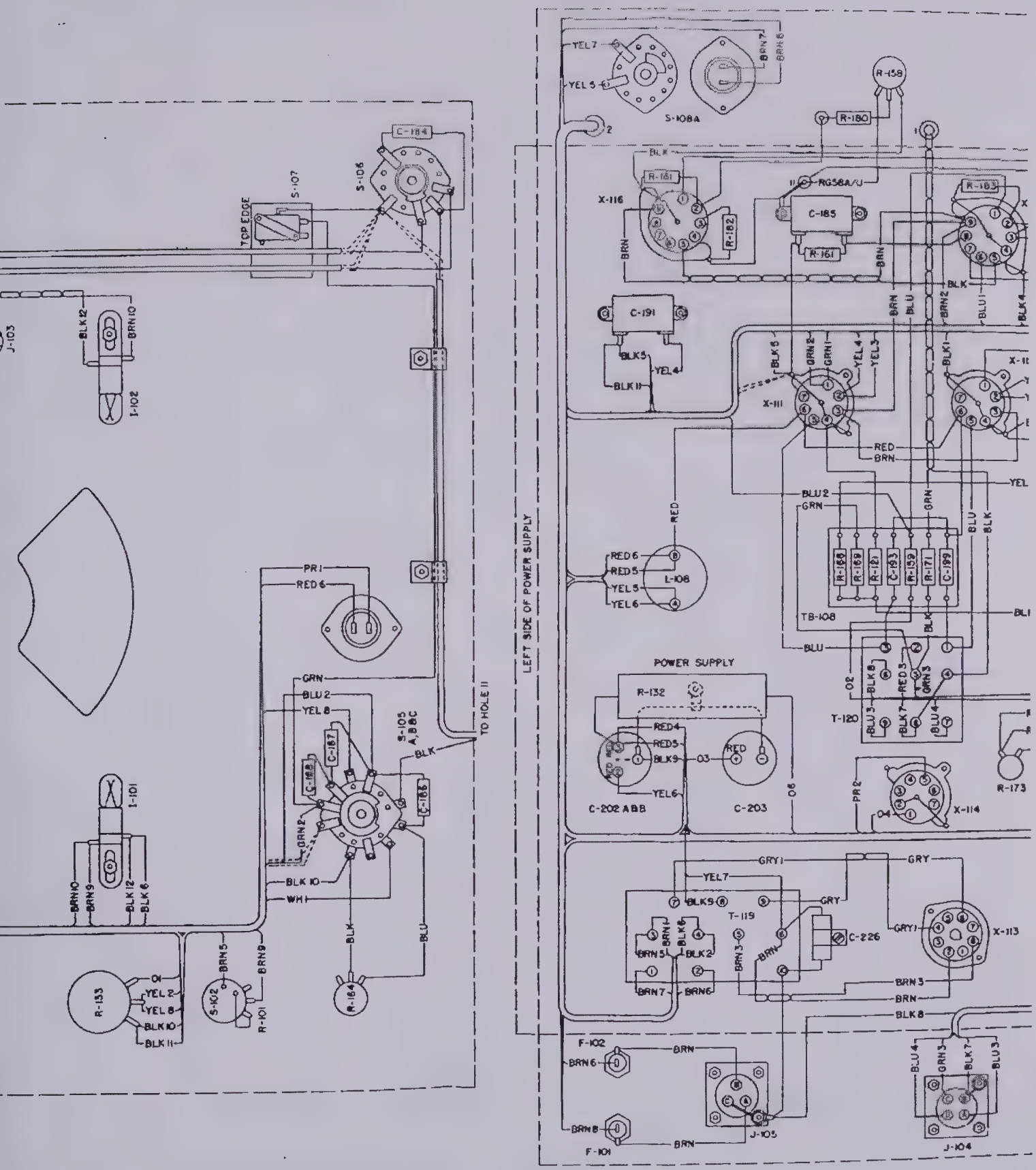
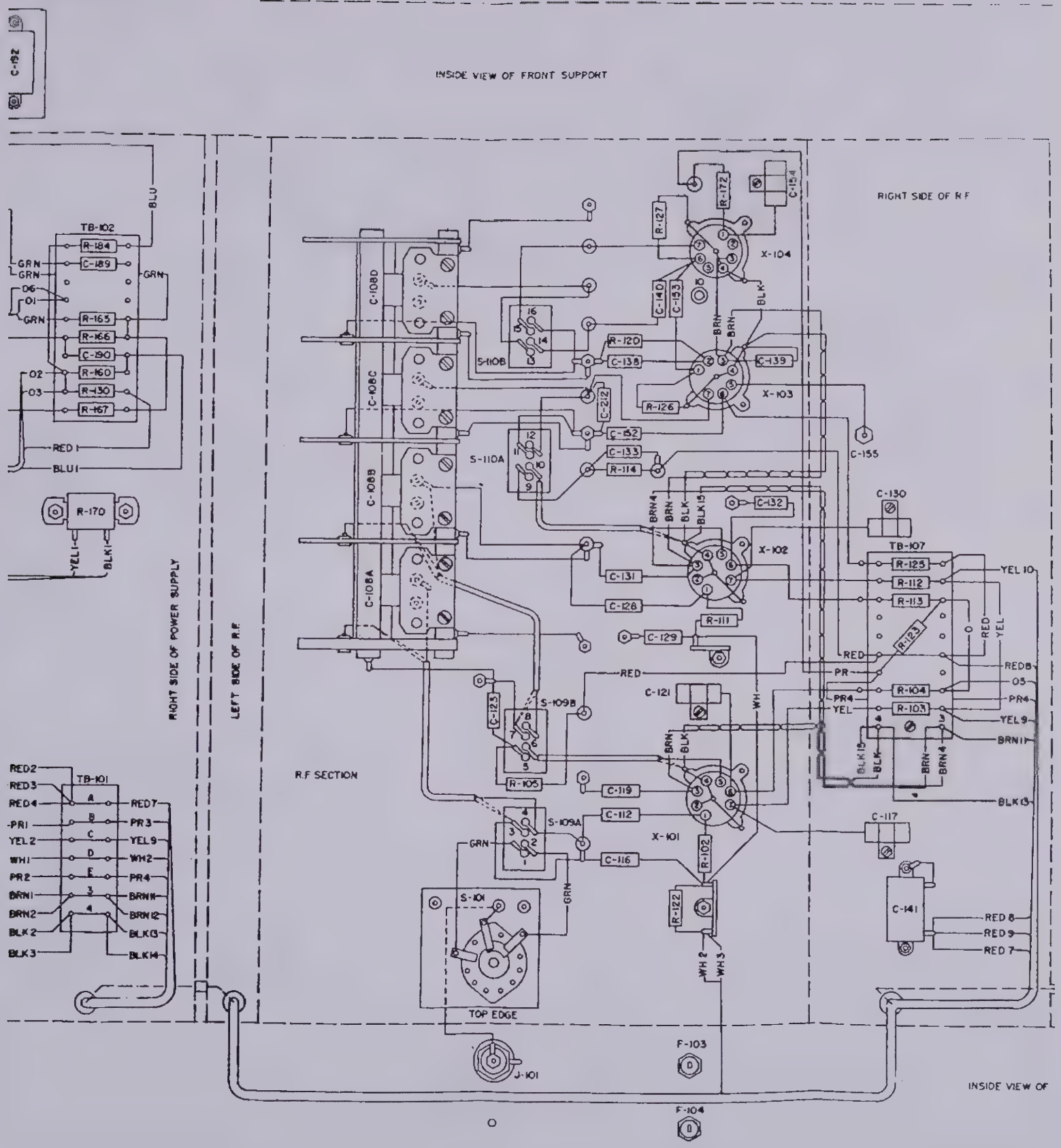

TO HOLE 3
TO HOLE 4
TOP EDGE
S-107
S-106
GRN
BLK
J-103
BLK 12
BRN 10
I-102
REAR VIEW OF FRONT PANEL
BOTTOM EDGE OF FRONT PANEL
TO HOLE 1
I-101
BRN 10
BRN 9
BLK 12
BLK 6
PRI
RED 6
GRN
BLU 2
YEL 8
C-107
C-108
S-105
BRN 2
BLK 10
WH 1
BLK
TO HOLE 2
R-133
O1
YEL 2
YEL 8
BLK 10
BLK 11
S-102
BRN 5
BRN 9
R-101
R-164


LEFT SIDE OF POWER SUPPLY
TO HOLE 11
TOP EDGE
S-107
S-106
C-184
J-103
BLK 12
BRN 10
J-102
J-101
BRN 10
BRN 9
BLK 12
BLK 6
PRI
RED 6
GRN
BLU 2
YEL 8
S-105 A,B&C
C-187
C-188
C-186
BLK
GRN 2
BLK 10
WHT
BLK
BLU
R-133
01
YEL 2
YEL 8
BLK 10
BLK 11
S-102
BRN 5
BRN 9
R-101
R-164
S-108A
YEL 7
YEL 5
BRN 7
BRN 6
R-158
R-180
2
BLK
R-161
X-116
R-182
RG58A/U
C-185
R-161
R-163
BRN
BRN
BLK
BRN 2
BLU 1
BLK 4
C-191
BLK 5
YEL 4
BLK 11
BLK 5
GRN 2
GRN 1
YEL 4
YEL 3
X-111
BLK 1
X-11
RED
BRN
YEL
BLU 2
GRN
RED
RED 6
RED 5
YEL 5
YEL 6
L-108
R-168
R-169
R-121
C-193
R-159
R-171
C-199
TB-108
BLK
BLU
BLU
BLK
POWER SUPPLY
R-132
RED 4
RED 5
BLK 9
03
YEL 6
C-202 A&B
C-203
RED
05
02
BLK 6
RED 3
GRN 3
BLU 3
BLK 7
BLU 4
T-120
PR 2
X-114
04
R-173
GRY 1
YEL 7
BLK 9
T-119
GRY
BRN 1
BLK 6
BRN 5
BLK 2
BRN 3
BRN
C-226
GRY
GRY 1
X-113
BRN 7
BRN 6
BRN 3
BRN
BLK 8
F-102
BRN 6
BRN
BRN 8
F-101
BRN
J-103
J-104
BLU 4
GRN 3
BLK 7
BLU 3

NAVSHIPS 91454(A)
AN/TRR-5



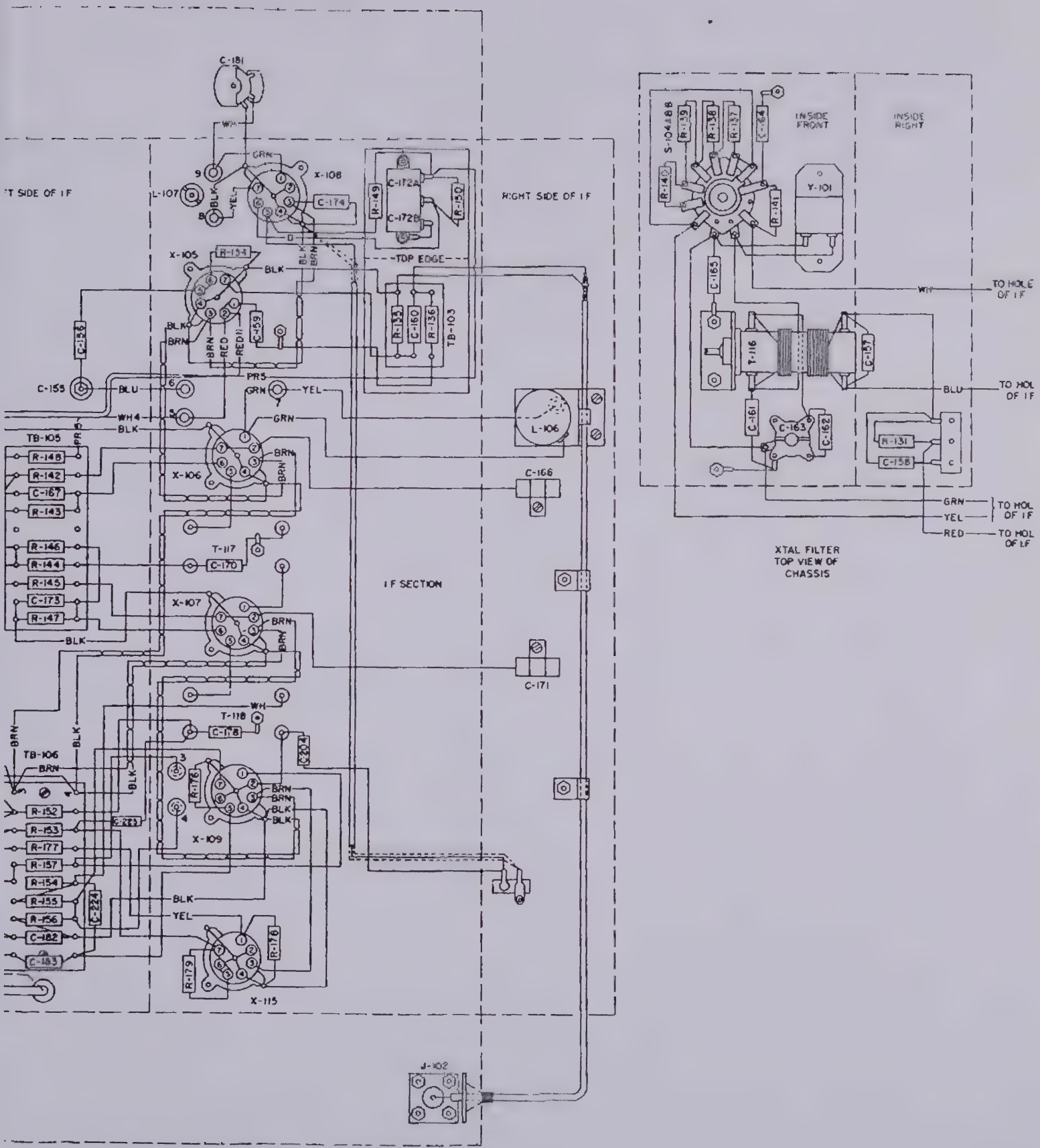
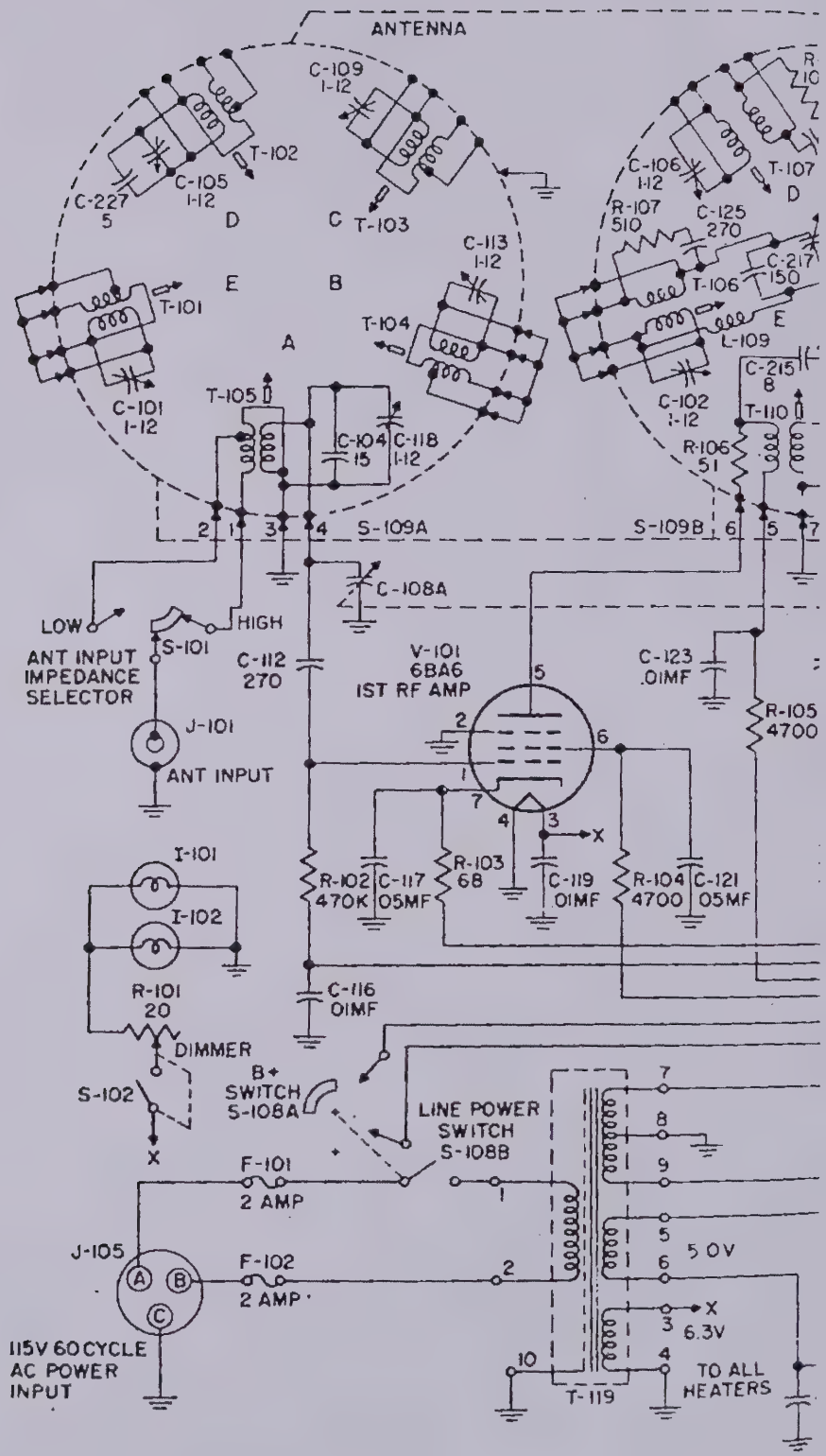


Figure 7—18. Radio Receiver R-366/TRR-5, Wiring Diagra


ANTENNA
C-109
1-12
T-102
C-105
1-12
C-227
5
D
C
T-103
C-113
1-12
E
B
T-101
T-104
A
C-101
1-12
T-105
C-104
15
C-118
1-12
C-106
1-12
T-107
D
R-107
510
C-125
270
C-217
150
T-106
E
L-109
C-215
8
C-102
1-12
T-110
R-106
51
2
1
3
4
S-109A
S-109B
6
5
7
C-108A
LOW
HIGH
ANT INPUT
IMPEDANCE
SELECTOR
S-101
C-112
270
V-101
6BA6
IST RF AMP
C-123
.01MF
R-105
4700
J-101
ANT INPUT
I-101
I-102
R-102
470K
C-117
05MF
R-103
68
C-119
01MF
R-104
4700
C-121
05MF
X
C-116
01MF
R-101
20
DIMMER
S-102
B+
SWITCH
S-108A
LINE POWER
SWITCH
S-108B
F-101
2 AMP
J-105
F-102
2 AMP
115V 60 CYCLE
AC POWER
INPUT
5.0V
6.3V
T-119
TO ALL
HEATERS

DIAGRAM

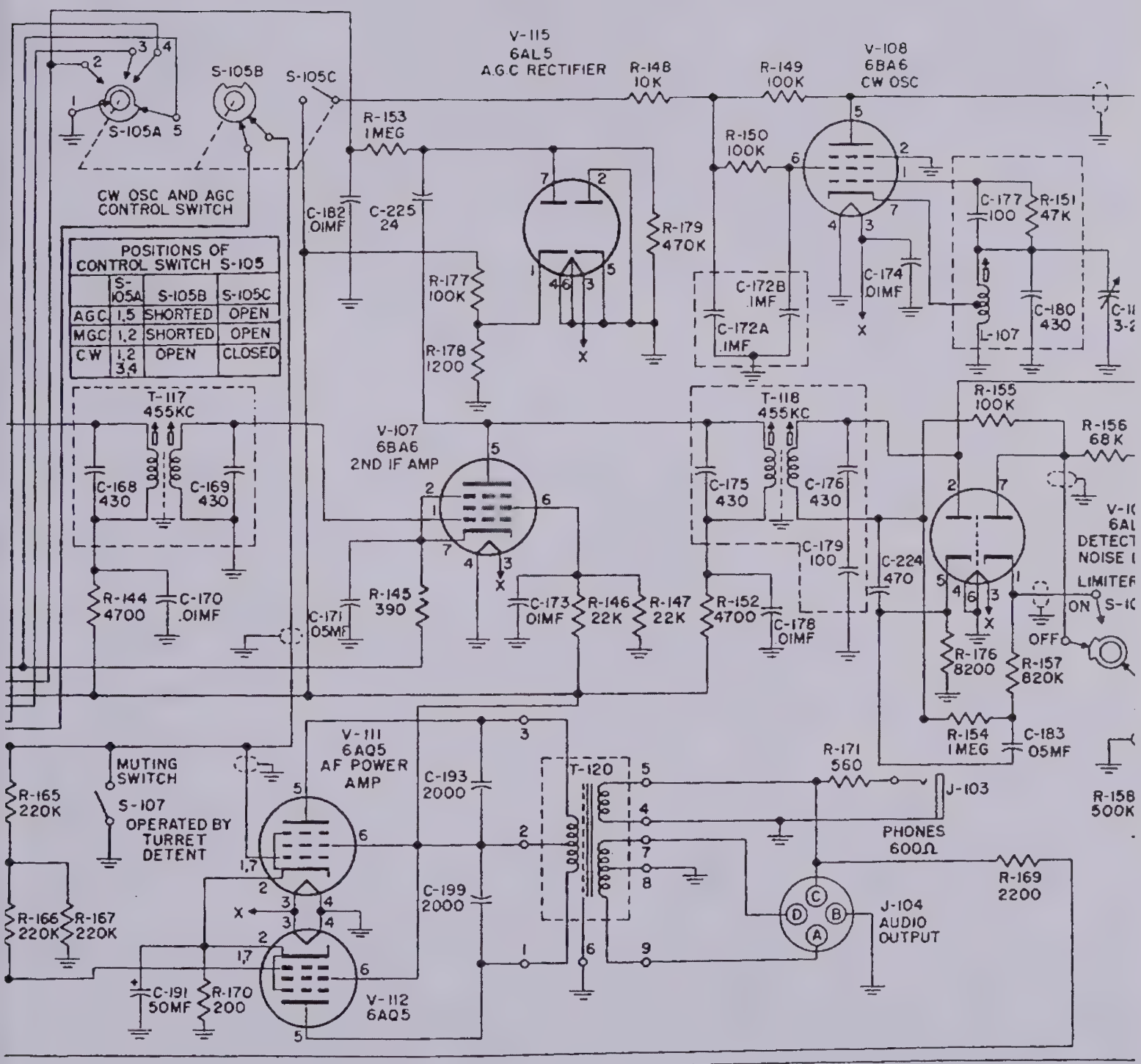
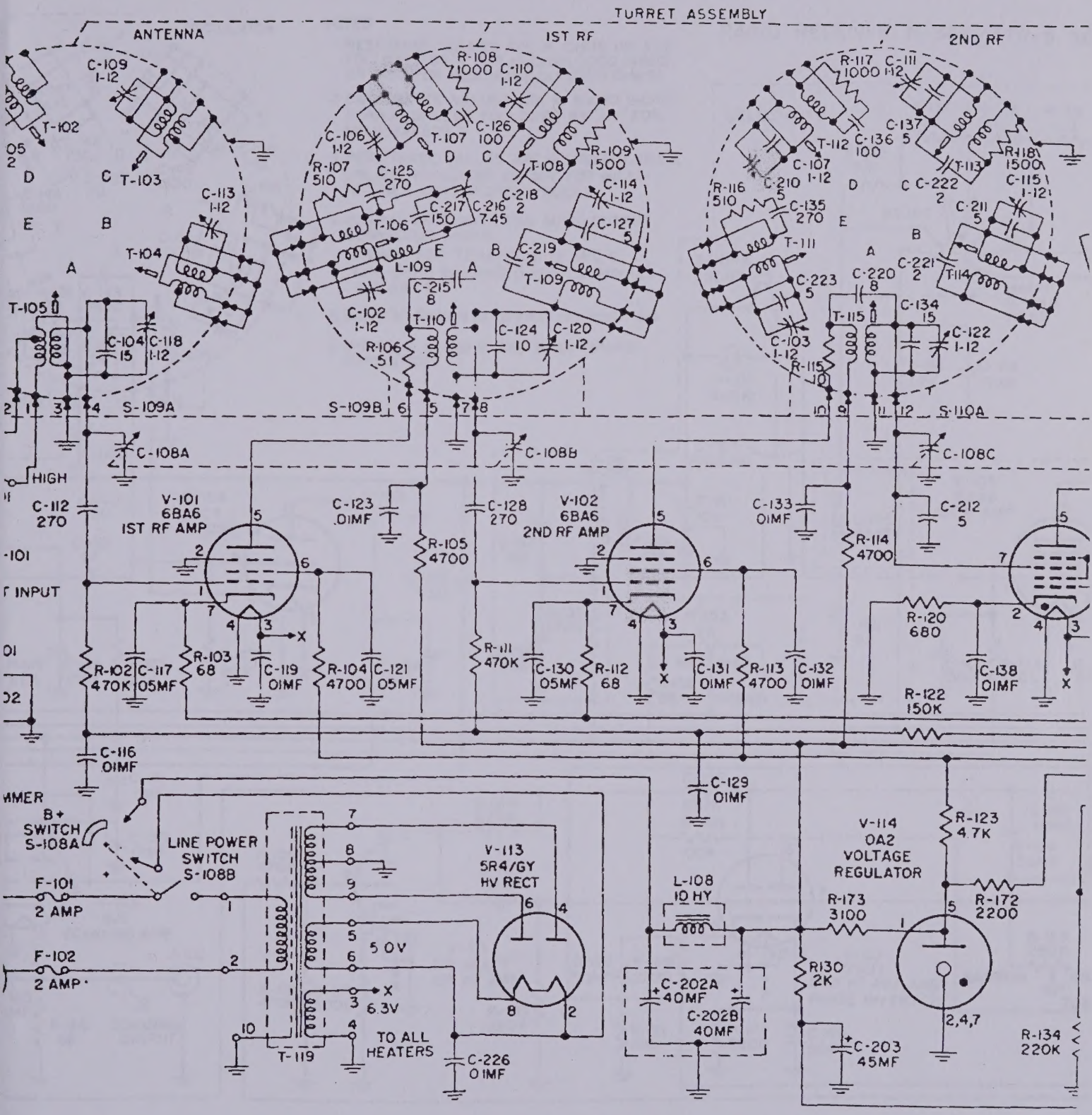
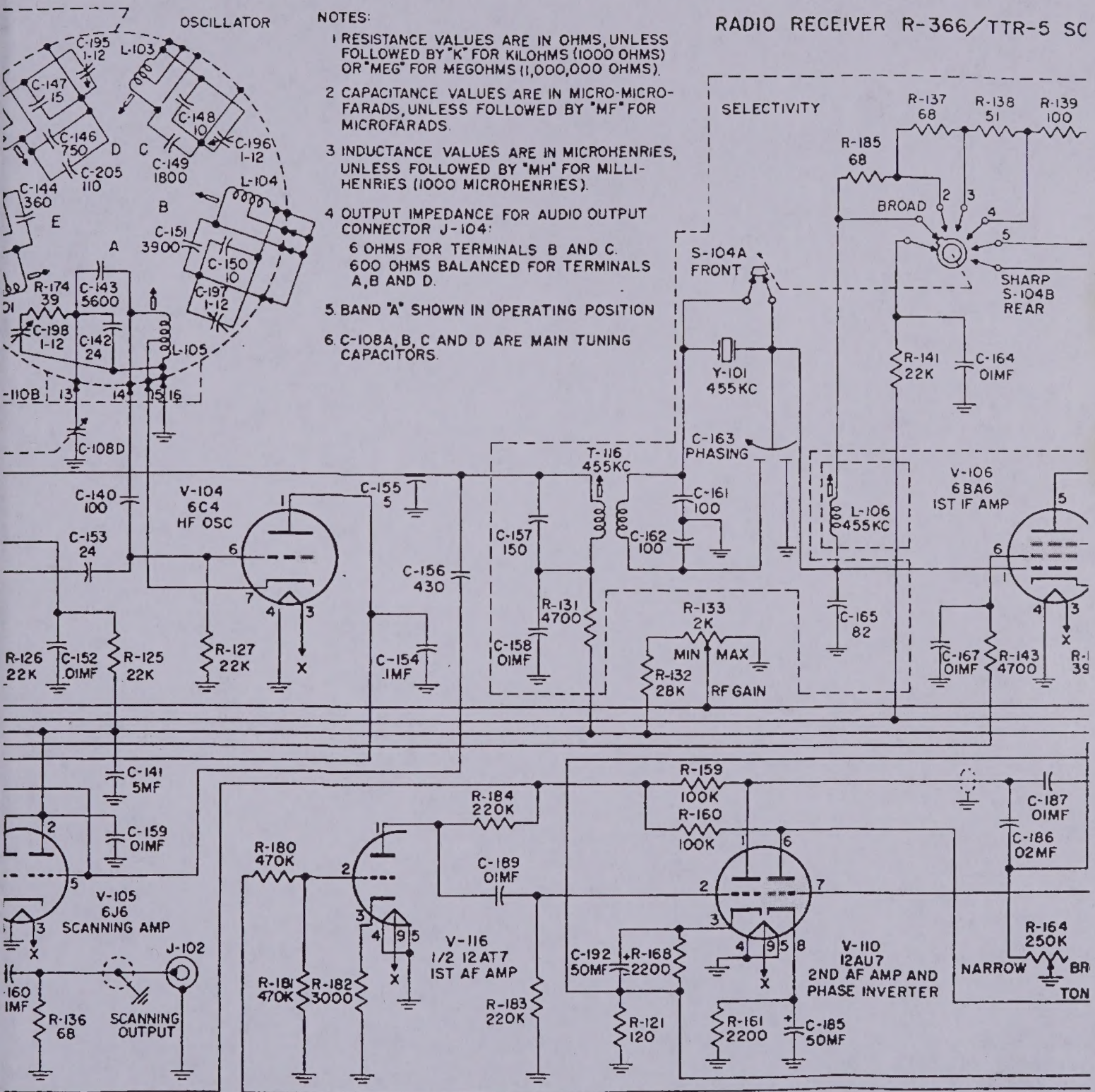
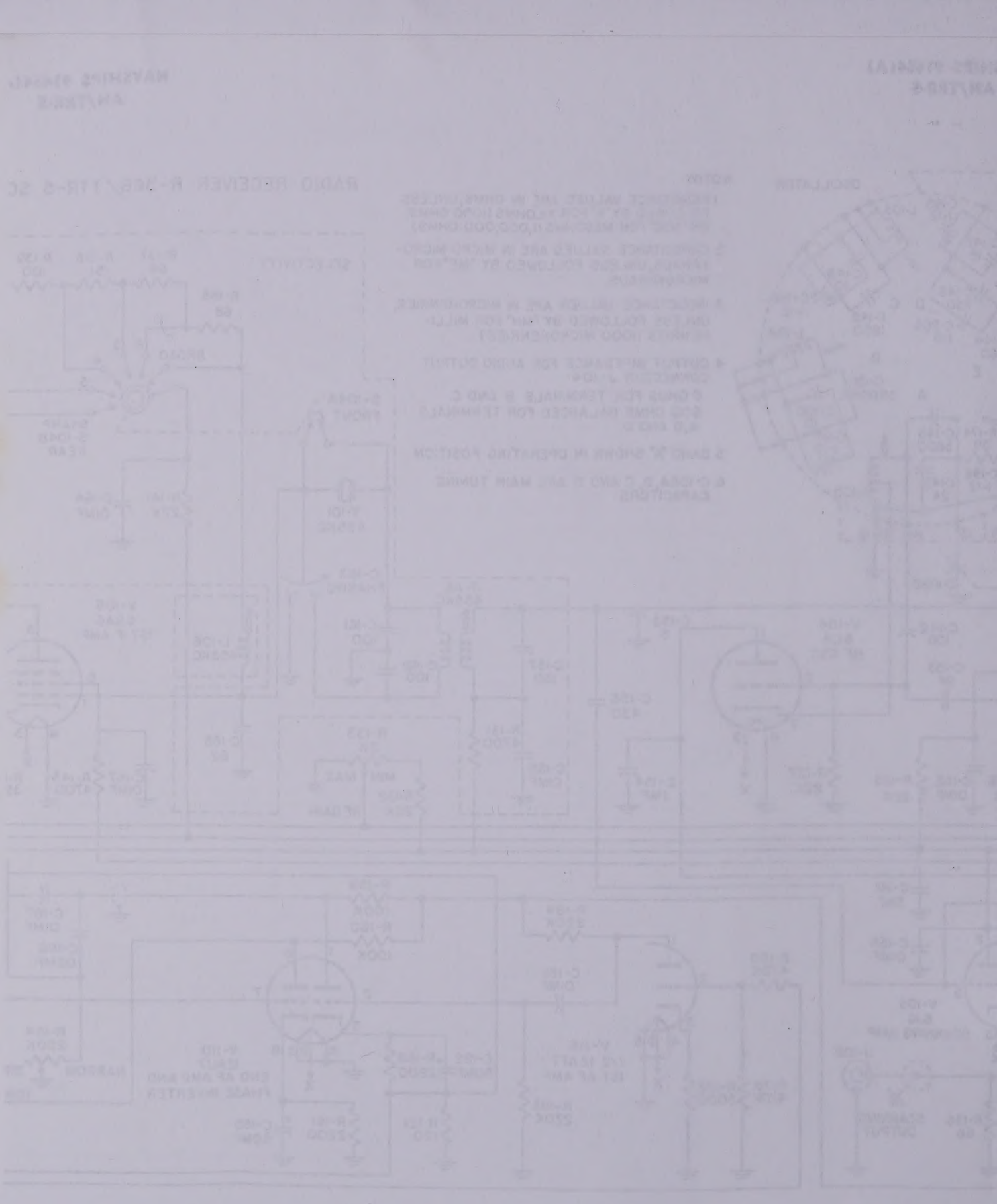


Figure 7—17. Radio Receiver R-366/TRR-5, Schematic Diag


TURRET ASSEMBLY
ANTENNA
1ST RF
2ND RF
S-109A
S-109B
S-110A
V-101 6BA6 1ST RF AMP
V-102 6BA6 2ND RF AMP
V-113 5R4/GY HV RECT
V-114 0A2 VOLTAGE REGULATOR
B+ SWITCH S-108A
LINE POWER SWITCH S-108B
F-101 2 AMP
F-102 2 AMP
5.0V
6.3V
TO ALL HEATERS
T-119
L-108 10 HY
C-202A 40MF
C-202B 40MF
C-203 45MF
C-226 01MF
C-129 01MF
C-116 01MF
R-130 2K
R-134 220K
HIGH
INPUT

NAVSHIPS 91454(A)
AN/TRR-5

RADIO RECEIVER R-366/TTR-5 SC

NOTES:

1. RESISTANCE VALUES ARE IN OHMS, UNLESS FOLLOWED BY "K" FOR KILOHMS (1000 OHMS) OR "MEG" FOR MEGOHMS (1,000,000 OHMS).
2. CAPACITANCE VALUES ARE IN MICRO-MICRO-FARADS, UNLESS FOLLOWED BY "MF" FOR MICROFARADS.
3. INDUCTANCE VALUES ARE IN MICROHENRIES, UNLESS FOLLOWED BY "MH" FOR MILLI-HENRIES (1000 MICROHENRIES).
4. OUTPUT IMPEDANCE FOR AUDIO OUTPUT CONNECTOR J-104:
   6 OHMS FOR TERMINALS B AND C.
   600 OHMS BALANCED FOR TERMINALS A, B AND D.
5. BAND "A" SHOWN IN OPERATING POSITION
6. C-108A, B, C AND D ARE MAIN TUNING CAPACITORS.